Ministry of Natural Resources

Ontario

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Ontario's Natural Heritage Areas

Their Description and Relationship to the IUCN Protected Areas Classification System

(A Provisional Assessment)

Ontario

Ontario's Natural Heritage Areas: Their Description and Relationship to the IUCN Protected Areas Classification System

(A Provisional Assessment)

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Paul A. Gray

Dan Paleczny

Thomas J. Beechey

Bruce King

Monique Wester

Robert J. Davidson

Stephanie Janetos

S. Barton Feilders

Rob G. Davis

Ontario Ministry of Natural Resources,
300 Water Street,
Peterborough, Ontario, K9J 8M5, Canada

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Disclaimer

The Government of Ontario employs the 'protected area' concept to denote sites regulated and protected in legislation including Provincial Parks, Conservation Reserves, Wilderness Areas, and National Parks.

No statement in this document is intended to suggest that this approach is under review.

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Foreword

Since the creation of Queen Victoria Niagara Falls Park in 1887 and Algonquin Provincial Park in 1893, successive governments and private organizations have established a wide array of parks and other natural heritage areas in Ontario. Altogether, more than 40 types of natural heritage areas – some with many sub-categories – now comprise a diverse network of sites that contribute to the conservation of biodiversity in Ontario and beyond. This report provides descriptions of the major categories of natural heritage areas (e.g., National Parks, Migratory Bird Sanctuaries, Provincial Parks, Wildlife Management Areas, Carolinian Canada Sites, and Conservation Easements) with a provisional assessment of their protection status. It is the first time that most types of natural heritage areas established in Ontario have been described in one document.

While the earliest parks were set aside largely for recreational use, passive enjoyment, and appreciation, more recent protection programs have increasingly valued such areas for their significant contributions to biodiversity conservation, ecological sustainability, scientific research, environmental monitoring, education, and understanding. Indeed these values have come to drive science-based approaches used to design and manage both individual areas and clusters of sites. Our better understanding of landscape ecology and large-scale ecological processes has consolidated thinking on the need to design, to plan, and to manage natural heritage areas as functioning networks rather than as isolated islands of green.

What is the relationship between a natural heritage area and a protected area? Historically, agreement on the strength and intent of a generic definition of a 'protected area' has been elusive. Some maintain that 'protected area' should be used only to denote strictly managed, legislated, and regulated sites such as Canadian National and Provincial Parks. For example, the Government of Ontario reserves the use of 'protected area' for regulated Provincial Parks, Conservation Reserves, Wilderness Areas, and National Parks. And formal reporting on the status of protected areas in Ontario has been largely limited to these types of sites. However, given that other designations can work in association with 'protected areas' to help maintain functioning ecosystems and biodiversity, interest in acknowledging and recognizing these sites has emerged in agencies, organizations, and institutions in recent decades. Therefore, we use 'natural heritage area' as an inclusive phrase that refers to areas that are managed with a variety of protection mechanisms.

Given that a significant part of this document is devoted to an assessment of Ontario's various natural heritage areas in the context of the International Union for the Conservation of Nature and Natural Resources (IUCN) protected area management categories, we use the IUCN definition of a protected area as the basis for assessment of the IUCN classification system: *"A clearly defined geographical space, recognised, dedicated and managed through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values"* (Dudley, 2008:8).

The accounts of the different types of natural heritage areas in this report include a description of their objectives and key characteristics, with a preliminary assessment of their protection status to illustrate the contribution that each makes to the overall network of sites in Ontario. The determination of protection status is based on standardized, widely recognized criteria that help define the relationship of each type of area to the IUCN protected areas classification: the scope of protection (e.g., protection objective), the strength of the protection commitment (e.g., legislation, policy, and management plans), the permanence of the commitment, the quality of protection (e.g., the type of human activities permitted in protected areas), and protection timing (e.g., all year or seasonal). This approach employs two categories, 'fully protected' and 'partially protected' natural heritage areas. It is important to note that this is a coarse-grained separation subject to refinement based on finer calibration of the criteria and additional considerations.

Many jurisdictions throughout the world have used the IUCN classification since it was first introduced in 1972. In the early 1980s, many protected areas in Ontario were included and classified in the National Registry of Ecological Areas issued by the Canadian Council on Ecological Areas (CCEA). Subsequently, this approach was incorporated into the Canadian Conservation Areas Database (CCAD) established by Environment Canada in collaboration with the CCEA. More recently, the Conservation Areas Reporting and Tracking System (CARTS) under development by Environment Canada in collaboration with the CCEA retains this approach to refine the application of the IUCN scheme to classify protected areas in this database. This work exemplifies initiatives in many countries that will enhance the World Database on Protected Areas (WDPA).

The aforementioned databases, the Natural Areas Database (NADb) of the Natural Heritage Information Centre (NHIC), and other conservation databases contain information and descriptions of some of the natural heritage areas described in this report. While information in these databases may be sufficient for many applications, in some cases it may be dated and incomplete. Users are advised to contact the administrative sources cited in the individual program accounts for current and complete information of natural heritage areas managed by the mandated agencies and organizations responsible for any particular category.

The release of this report is timely in relation to complementary initiatives in other jurisdictions. In connection with ongoing review and application of the IUCN classification, case study applications of the IUCN guidelines have been developed by a number of jurisdictions. For example, the Canadian Council on Ecological Areas has developed guidelines and provided case studies for the Canadian application of the IUCN classification. We hope this report will contribute to the Canadian initiative and to other efforts aimed at refining and applying the IUCN scheme universally in Canada and around the world. As the uniformity in approach solidifies, it will become easier to gauge Ontario's progress in caring for natural heritage areas more precisely in a national and an international context, and to determine Ontario's contribution to global efforts on natural heritage areas.

Image by D. Paleczny

Although this report provides a wide ranging and detailed assessment of natural heritage areas in Ontario, some categories are treated more thoroughly than others and a few types of areas (e.g., First Nations contributions, university training and research lands, and some government lands like military reserves) are not described. It is anticipated that future versions of this report will update natural heritage area descriptions, statistics, and maps, and include descriptions of these few remaining categories. Therefore, this report should be treated as a work in progress.

Follow-up to this report will be largely dependent upon the response and feedback received from practitioners and other user groups. We hope that this report leads to the development of a practical, finely calibrated framework that is valuable to all interests and users. The report could be the focus of further dialogue and collaboration to complete the documentation of natural heritage area categories, to refine the evaluation scheme, and to explore how the many agencies and organizations might collectively apply it. The ultimate goal is to have a common approach that can be used to compile and maintain a complete inventory and database of Ontario's natural heritage areas that will be useful for planning, managing, and reporting regularly on this unique heritage estate.

Executive Summary

Many types of natural heritage areas have been established in jurisdictions throughout the world in the last century. In Ontario, natural area conservation and protection formally dates back to 1887 with the creation of Queen Victoria Niagara Falls Park. Since then, more than 40 natural heritage area designations (e.g., National Parks, Migratory Bird Sanctuaries, Provincial Parks, Wildlife Management Areas, Carolinian Canada Sites, and Conservation Easements) with numerous types of management zones have been created to care for all, or defined parts, of many ecosystems in Ontario. In addition, more than 40 agencies and organizations, over and above the many municipal governments and individual landowners, are directly involved in protecting and/or managing millions of hectares of Ontario's natural heritage estate. Given that no single, integrated system currently exists, collaboration and cooperation among the many agencies, organizations, and individuals who care for these special places is critical. In addition, the plethora of terms, designations, and management regimes introduced in the last 100 years has led to confusion and difficulty in characterizing Ontario's natural heritage areas, particularly when tabulating areas that are not formally regulated.

The accounts of the different types of natural heritage areas in this report include a description of relevant legislation and policy, protection objectives, selection criteria, and management objectives, with a preliminary assessment of their protection status. The determination of their protection status is based on standardized, widely recognized criteria that help define the relationship of each type of area to the IUCN protected areas classification: the scope of protection (e.g., protection objective), the strength of the protection commitment (e.g., legislation, policy, and management plans), the permanence of the commitment, the quality of protection (e.g., the type of human activities permitted in protected areas), and protection timing (e.g., all year or seasonal). This approach employs two categories, 'fully protected' and 'partially protected' natural heritage areas. It is important to note that this is a coarse-grained separation subject to refinement through a finer calibration of the criteria and additional considerations.

Based on the published definitions of the IUCN protected area management categories, guidelines for applying the classification to Ontario's natural heritage areas are provided in this review. The IUCN protected areas classification is useful because it can assist jurisdictions in their efforts to think and plan strategically and to develop rationalized natural heritage area programs based on the 'degree' of permitted human activity. In addition, it can provide, however complex, a mechanism by which jurisdictions can compare programs and engage in collaborative initiatives.

A general comparison of Ontario's natural heritage areas with the IUCN protected areas classification suggests that:

- All types of Ontario's 'fully protected' areas equate to at least one category in the IUCN classification system.
- Many types of Ontario's 'fully protected' areas equate to more than one category in the IUCN classification system because many areas are comprised of zones that are managed to attain different goals.
- As defined in this discussion paper, 'partially protected' areas cannot be classified into an IUCN protected area management category. It is important to note however, that these areas do contribute to the maintenance and enhancement of Ontario's ecosystems and the biological assets in them. Perhaps there is merit in creating a classification system that acknowledges this contribution.

image by P. Kor

Résumé

Au cours du siècle dernier, différentes sortes de zones de patrimoine naturel ont été mises en place dans plusieurs circonscriptions de par le monde. En Ontario, la conservation et la protection des espaces naturels remontent à 1887, année de la création du parc Queen Victoria Niagara Falls. Depuis, plus de 40 désignations de patrimoine naturel (p. ex., les parcs nationaux, les refuges d'oiseaux migrateurs, les parcs provinciaux, les zones de gestion de la faune, les zones caroliniennes du Canada et les servitudes du patrimoine) et plusieurs tipes de zones de gestion ont été créées pour prendre soin de la totalité ou de certaines parties des nombreux écosystèmes de l'Ontario. En outre, plus de 40 agences et organisations, sans compter les nombreuses administrations municipales et les propriétaires fonciers privés, interviennent directement dans la protection et la gestion de millions d'hectares du domaine de patrimoine naturel de l'Ontario. Comme il n'existe actuellement aucun système intégré, la collaboration de nombreuses agences, organisations et personnes qui s'intéressent à ces lieux particuliers est essentielle. De plus, la surabondance de termes, de désignations et de modes de gestion adoptés ces 100 dernières années a semé la confusion et rendu difficile la définition des zones de patrimoine naturel de l'Ontario, particulièrement lorsqu'on tient compte des zones qui ne sont pas des parcs nationaux et provinciaux, des zones de nature sauvage et des réserves de conservation soumises à une réglementation officielle.

Les descriptions des diverses sortes de zones de patrimoine naturel faites dans ce rapport comprennent une description de la législation et des politiques pertinentes, des objectifs de protection, des critères de sélection et des objectifs de gestion, ainsi qu'une évaluation préliminaire de la protection. Leur protection est établie en fonction de critères normalisés, largement reconnus qui permettent de définir le rapport de chaque genre de zone avec la classification de l'UICN pour les zones protégées : l'étendue de la protection (p. ex., objectifs de protection), la fermeté de la volonté de protection (p. ex., législation, politiques et plans de gestion), la permanence de la volonté et la qualité de la protection (p. ex., le genre d'activités humaines permises dans les zones protégées), et la durée de la protection (p. ex., toute l'année, saisonnière). Cette méthode utilise deux catégories de zones de patrimoine naturel : « entièrement protégée » et « partiellement protégée ». Il est important de remarquer qu'il s'agit d'une distinction sommaire qui devra être affinée par des critères plus poussés et d'autres considérations.

Les directives qui sont données pour appliquer la classification aux zones de patrimoine naturel de l'Ontario sont fondées sur les définitions des catégories de gestion des zones protégées publiées par l'UICN. La classification des zones protégées de l'UICN est utile parce qu'elle peut aider les circonscriptions à penser et planifier de façon stratégique et à élaborer des programmes rationalisés sur les zones de patrimoine naturel en fonction du « degré » d'activité humaine permis. De plus, elle peut donner un mécanisme qui, bien que complexe, permettra aux compétences de comparer les programmes et de se lancer dans des initiatives de collaboration.

Une comparaison générale des zones de patrimoine naturel de l'Ontario et de la classification des zones protégées de l'UICN indique que :

- Toutes les sortes de zones « entièrement protégées » de l'Ontario équivalent à au moins une catégorie du système de classification de l'UICN.
- Plusieurs sortes de zones « entièrement protégées » de l'Ontario équivalent à plus d'une catégorie du système de classification de l'UICN parce que plusieurs d'entre elles sont composées de zones qui sont gérées pour atteindre différents buts.
- Telles qu'elles sont définies dans le présent document de travail, les zones « partiellement protégées » ne peuvent être classées dans une catégorie de gestion des zones protégées de l'UICN. Cependant, il est important de remarquer que ces zones contribuent à l'entretien et à l'amélioration des écosystèmes de l'Ontario et aux actifs biologiques qu'ils contiennent. Il vaut peut-être la peine de créer un système de classification qui reconnaisse cette contribution.

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Acronyms

ACER	Associate Committee on Ecological Reserves
AOC	Area of Concern
ANCA	Australian Nature Conservation Association
ANSI	Area of Natural and Scientific Interest
BSC	Bird Studies Canada
BTC	Bruce Trail Conservancy (formerly the Bruce Trail Association – BTA)
CA	Conservation Authority
CAP	Conservation Action Planning
CARTS	Conservation Areas Reporting and Tracking System
CASIOPA	Centre for Applied Science In Ontario Protected Areas
CBD	Convention on Biological Diversity
CBRA	Canadian Biosphere Reserves Association
CCAD	Canadian Conservation Areas Database
CCEA	Canadian Council on Ecological Areas
CEAC	Canadian Environmental Advisory Committee
CHRS	Canadian Heritage Rivers System
CLTIP	Conservation Land Tax Incentive Program
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
CPC	Canadian Parks Council
CR	Conservation Reserve
CWS	Canadian Wildlife Service
DFO	Department of Fisheries and Oceans
DU	Ducks Unlimited
EHJV	Eastern Habitat Joint Venture
EMA	Enhanced Management Area
FON	Federation of Ontario Naturalists (now Ontario Nature)
FP	Fully Protected
IBA	Important Bird Area
IBP	International Biological Programme
IBP/CT	International Biological Programme/ Conservation of Terrestrial Communities Section
IOM	Integrated Oceans Management
IUCN	International Union for the Conservation of Nature and Natural Resources
LOMA	Large Ocean Management Area
MAB	Man and the Biosphere
MBS	Migratory Bird Sanctuary
MFTIP	Managed Forest Tax Incentive Program
MMAH	Ministry of Municipal Affairs and Housing
MNR	Ministry of Natural Resources
MPA	Marine Protected Area
MWA	Marine Wildlife Area
NADb	Natural Areas Database
NAWMP	North American Waterfowl Management Plan
NCAD	North America Conservation Areas Database
NCC	Nature Conservancy of Canada
NEC	Niagara Escarpment Commission
NFIS	National Forest Information System
NGO	Non-government Organization
NHIC	Natural Heritage Information Centre
NMCA	National Marine Conservation Area
NRVIS	Natural Resource Values Information System
NWA	National Wildlife Area
OEHJV	Ontario Eastern Habitat Joint Venture
OLL	Ontario's Living Legacy
OLTA	Ontario Land Trust Alliance
OLTAP	Ontario Land Trust Alliance Land Securement Program
PP	Partially Protected
PPS	Provincial Policy Statement
SaCL	Speaking a Common Language
TRCA	Toronto and Region Conservation Authority (also referred to as MTRCA – Metropolitan Toronto and Region Conservation Authority)
UNEP	United Nations Environment Programme
UNESCO	United Nations Education, Scientific and Cultural Organization
UTRCA	Upper Thames River Conservation Authority
WCED	World Commission on Environment and Development
WCPA	World Commission on Protected Areas
WDPA	World Database on Protected Areas
WELOAA	Wildlife Extension Landowner Agreement Area
WMA	Wildlife Management Area
WRI	World Resources Institute
WWF	World Wildlife Fund

1. Introduction

Ontario is a province of diverse and contrasting landscapes and waterscapes characterized by countless assemblages of landforms, water, climate, soils, flora, and fauna that are found in 14 ecological regions nested in three distinct ecological zones (Box 1-1, Fig. 1-1). Its rich natural and cultural heritage is, in large part, a function of its great latitudinal length and longitudinal width (1,688 km by 1,553 km) encompassing more than 107 million ha. From the sub-arctic ecosystems along the Hudson Bay coast to the Carolinian Life Zone (Eastern Deciduous Forest) in southwestern Ontario, live more than 3,045 species of vascular plants; some 511 mosses, 154 liverworts, and 112 ferns and fern allies; more than 1,000 species of fungi and algae, and 700 lichens; 260 molluscs; 230 worms; thousands of insect species and other invertebrates; and hundreds of vertebrate species, including 479 birds, 84 mammals, 27 reptiles, 27 amphibians, and 160 species of fish (W. Crins, personal communication; Newmaster et al., 1998; M. Oldham, personal communication; D. Sutherland, personal communication). Ontario's cultural heritage dates back thousands of years to early post-glacial migrants and indigenous settlers, traders, potters, farmers, hunters, and fishers. Cultural evolution and interaction includes the fur trade, agriculture, industry, and transportation, as well as military and political history. Ontario's collection of natural heritage areas provides an important tool with which to care for this rich and diverse natural and cultural heritage.

In response to increased and competing demands for natural resources, societies around the world are aspiring to ecologically sustainable ways to live and work in, on, and above Earth's landscapes and waterscapes (Clark, 1986; Gray et al., 1995; Gray and Davidson, 2000; IUCN/UNEP/WWF, 1980, 1991; McNeely et al., 1990; Munn, 1989; WCED, 1987). Ontario is no exception. In support of a commitment to ecological sustainability, numerous agencies and organizations in Ontario sponsor species and/or protected area programs and collaborate to complement and enhance their respective initiatives. For example, the vision of The Nature Conservancy of Canada (NCC) is to "...*protect areas of biological diversity for their intrinsic value and for the benefit of future generations*" (NCC, 2006a), and the mission of the Ontario Ministry of Natural Resources (MNR) is "...*to manage our natural resources in an ecologically sustainable way to ensure they are available for the enjoyment of future generations*" (MNR, 2005a).

Protected areas were first established in India more than 2,000 years ago to protect forested ecosystems (Holgate and Phillips, 1999; Phillips, 2004; Wright and Mattson, 1996). By the end of the 13th Century more than 3,000 private land 'deer-parks' had been established in England (Rackham, 1986), and by the 19th Century public parks were established in France, England, Canada, Australia, and the United States (Nelson, 1993; Phillips, 2004; Runte, 1997). For example, in England, Victoria Park was established as the first reserve purchased and managed as a public park in 1842 (Runte, 1997), and in 1872 Yellowstone was established as a National Park in the United States (Phillips, 2004). Many types of protected areas were established by jurisdictions throughout the world during the last century (see IUCN, 1998); today more than 1,380 different terms are used to describe these protected areas (Chape, 2004; Chape et al., 2003; Green and Paine, 1997).

In the Rocky Mountains, the Government of Canada initiated formal protection of the Bow Valley Hot Springs, part of which became Banff National Park in 1885 (Phillips, 2004; Environment Canada, 2006). In Ontario, natural heritage protection and conservation formally dates back to 1887 with the creation of Queen Victoria Niagara Falls Park (Davidson and Beechey, 1982; Eagles, 1993; Shultis, 1998). Since then, and for a variety of reasons, more than 40 types of designations and numerous types of management zones within these designations have been created to care for all or part of many ecosystems throughout the province. More than 40 agencies and organizations, over and above the many municipal governments, are directly involved in protecting and/or managing natural heritage areas in Ontario.

Natural heritage areas are located on federal, provincial, municipal, and private lands. Some areas are managed according to narrow and strict objectives (e.g., Nature Reserve Provincial Parks), some permit a wider array of activities (e.g., Natural

Environment Provincial Parks or Conservation Areas), and others have multiple national or international designations intended to acknowledge the outstanding qualities of the area (e.g., Canadian Heritage Rivers and Ramsar Convention Sites) from a variety of perspectives. Some have legislated protection and are formally described in regulation, some are protected through policy and management guidelines, while others are privately owned with protection achieved through tools such as conservation easements. Just as the purposes of natural heritage areas vary, so do the levels of protection afforded them. In some, access to, and human activities in them are strictly controlled, while in others a number of land-use activities are permitted. This complex plethora of designations and associated management objectives and prescriptions can be confusing. It raises a number of questions, including, but not limited to:

- What is a natural heritage area?
- What are the types of natural heritage areas in Ontario?
- How many areas are there in Ontario?
- How are natural heritage areas related to each other?

Box 1-1. Ontario's Ecozones, Ecoregions, and Ecodistricts.

Our ideas about an ecosystem approach to management are based on the concept that Earth operates as a series of interrelated systems, within which all components are linked. Rowe (1961), Bailey (1996), and many others argue that an ecosystem is a definable entity that has currency as a context in which to pursue sustainable living objectives – it is a recognizable chunk of Earth space, in which the flow of energy and the transformation of matter in-space-in-time create networks of organisms (such as plants and animals, including humans), atmosphere, rock, soil and water, interacting with each other and with other ecosystems.

Ecosystems can be very large (indeed, the Ecosphere is the largest earthly ecosystem) and very small (a pond, for example), where the smaller ecosystems fit into the larger ecosystems. This hierarchical organization has been described as "*successively encompassing levels of interacting components or units*" (Grobstein, 1974) that constitute a system of "*discrete interactive levels*" (Pattee 1973). A hierarchical approach helps us perceive complex systems by dividing them into understandable levels. Natural asset managers must be able to make decisions about human activities in ecosystems of all sizes, requiring that they know the location of ecosystem boundaries. The task of spatially and temporally delineating and describing ecosystems is called ecosystem classification (in Canada, it is often referred to as ecological land classification).

Each ecosystem is unique and complex, and its boundaries exist as a gradient between neighboring systems. This presents natural asset managers and users with a challenge. How can we hope to understand ecosystems in all their complexity and diverse shapes and sizes if they are all different? Fortunately, advances in ecological theory, analytical techniques, and spatial technologies now permit managers to apply integrated and interactive ecosystem delineation tools and techniques (see Bailey, 1996; Beechey, 1980; Burger, 1993; Burger and Pierpoint, 1990; Crins et al., 2009; Gray et al., 1996; Hills, 1952, 1953, 1959a, 1959b, 1960, 1961; Mackey et al., 1996a, 1996b; MNR, 1992; Perera et al., 2000; Rowe, 1961; Sims and Uhlig, 1992; and Wiken, 1986 for additional information on ecological land classification). While not perfect by any means, scientists and managers have identified criteria and rules with which to define and describe ecosystems as recognizable chunks of space-in-time. The criteria are based on the factors and forces that create and shape ecosystems. For example, the boundaries of Ontario's three Ecozones (continental-level ecosystems) are distinguished primarily on the basis of bedrock geology. The 14 Ecoregions nested within the Ecozones are distinguished by characteristic climatic regimes and bedrock geology (Crins, 2002; Crins et al., 2009), and the 71 smaller Ecodistricts each have a characteristic pattern of landscape features with similar climate, soils, and elevation (see Fig. 1-1).

Fig. 1-1. Ecozones, Ecoregions, and Ecodistricts of Ontario (Crins, 2002).

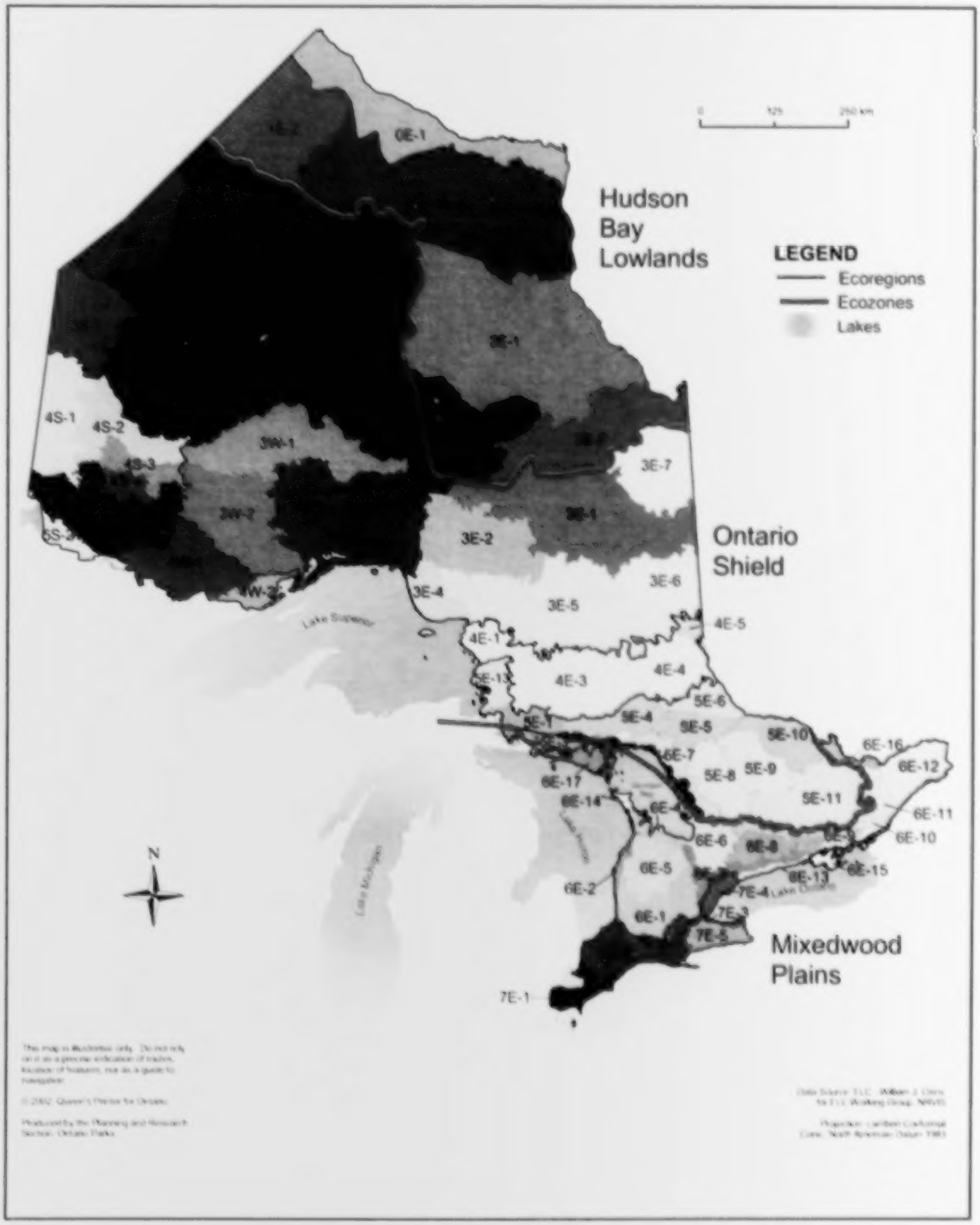


Fig. 1-1. Ecozones, Ecoregions, and Ecodistricts of Ontario (Crins, 2002).

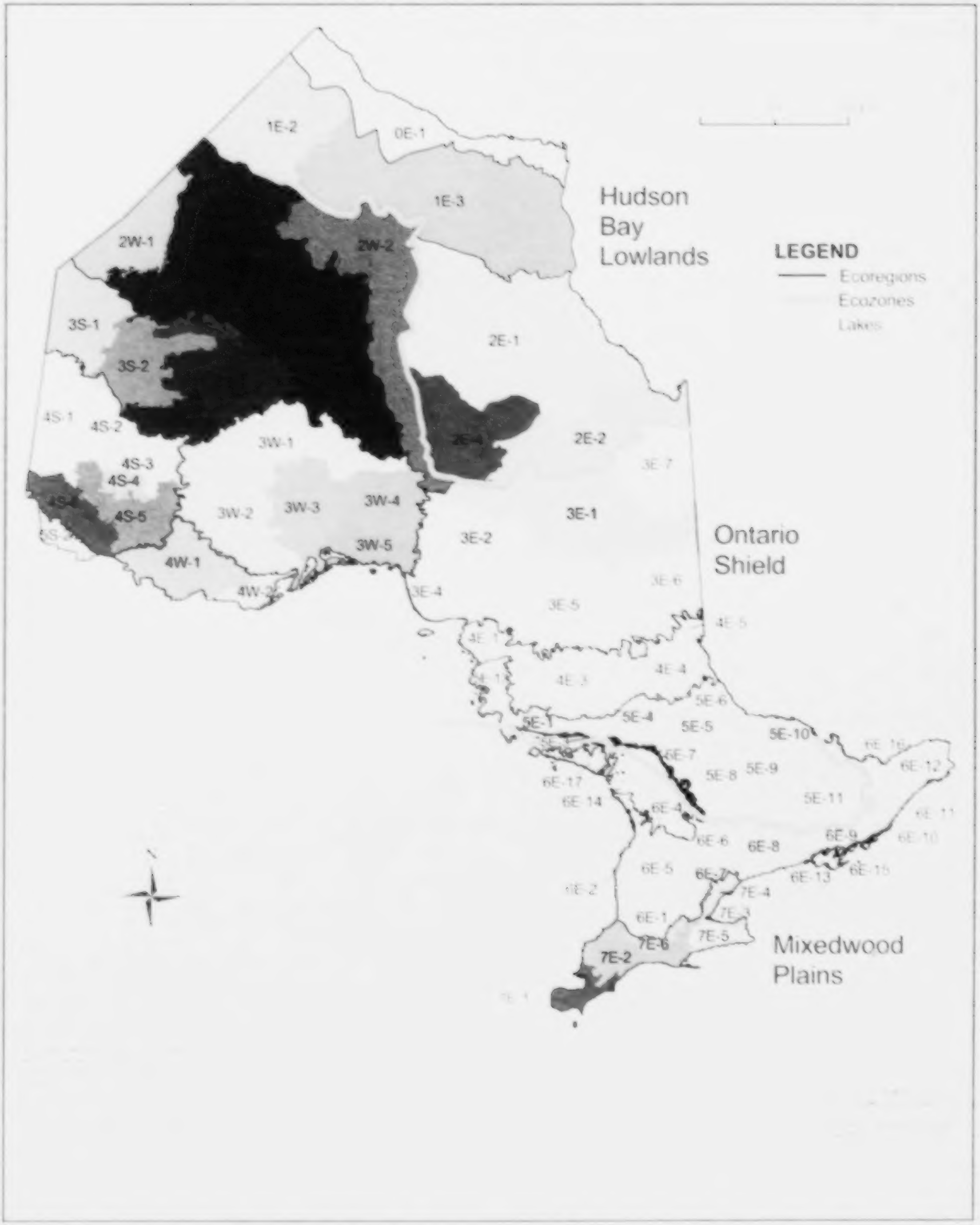


Image by P.A. Gray

This Report

This report presents a general review of the many mechanisms that contribute to natural asset protection throughout Ontario in the context of the ecosystem(s) in which they are found, in the context of broadly accepted criteria for protection, and in relation to the International Union for the Conservation of Nature (IUCN) Protected Area Management Categories. This document:

- Provides criteria to assist natural area managers in Ontario to distinguish between 'fully protected' areas and 'partially protected' areas.
- Examines Ontario's natural heritage areas in the context of the international standard, the IUCN Protected Area Management Categories.
- Provides a synthesis of natural heritage area information (ranging from international, national, provincial, and municipal government levels to lands owned and/or managed by NGOs and private individuals) that summarizes the legislation and policy basis, protection objectives, selection criteria, and management objectives for the range of natural heritage area designations in Ontario.
- Provides the basis for a multi-agency/organization collaborative program to compile and maintain a complete tally of natural heritage areas in Ontario.

Ontario's Natural Heritage Areas is a technical paper written to assist natural asset managers determine what is protected, to what degree, and how Ontario's variety of natural heritage areas relate to the IUCN classification system. As such, this paper will interest individuals, the representatives of NGOs, foundations, trusts, as well as municipal, provincial, and federal government specialists involved in the care of natural heritage area systems in Ontario. We hope that this document helps the IUCN enhance its protected areas program and the work of the World Commission on Protected Areas (WCPA). Nothing in this document is intended to interfere with existing Aboriginal rights that have been established through treaties and case law in different parts of Ontario. Information contained in this report is current to January, 2009.

Part I

Proposed Ontario Standards and the IUCN Protected Area Management Categories

2. Ontario's Natural Heritage in Context

Introduction

Ontario has had an active history in natural heritage area establishment, protection, and management (Killan, 1993, 1998). Natural area conservation and protection formally dates back to the 1880s with the *Public Parks Act* in 1883 and the creation of Queen Victoria Niagara Falls Park in 1887 (Box 2-1, Fig. 2-1). Since then, more than 40 types of designations with numerous types of management zones have been created to care for all, or defined parts, of the many ecosystems in Ontario (Carter-Edwards, 1998; Nelson, 1993, 1998; Priddle, 1993; and others).

Many of these designations were created to *"meet the needs of the day and not as part of any predetermined plan"* (Nelson, 1998). Nonetheless, natural heritage area management in Ontario has evolved over the decades, both in terms of size of the systems and the nature of natural heritage area policy (Box 2-1). As such, these designations provide the foundation for a provinical-level natural heritage area system in Ontario.

Eighty-seven percent of Ontario is publicly owned Crown land managed by many agencies and partners. The natural heritage area is an important management tool used in programs designed to attain various protection objectives. For example, MNR's parks, forest management, lands and waters, and biodiversity programs (including fish and wildlife programs) contribute to a number of objectives focused on ecological sustainability, including ecosystem health, the protection of natural and cultural assets, recreation, and the protection of people and property. Examples of other agencies that manage natural heritage areas on public lands in Ontario include the Parks Canada Agency (National Parks and National Historic Sites) and Environment Canada (Migratory Bird Sanctuaries and National Wildlife Areas). In addition, a number of organizations work in support of parks and other natural heritage areas on Crown land (Box 2-2).

The remaining 13% of the province is privately owned land located mainly in the most populated areas in the south. This area contains the province's highest proportion of threatened, endangered, and special concern species and their habitats. Accordingly, the efforts of private landowners, NGOs, and municipal governments are key to providing adequate protection and stewardship of critical species and spaces. For example, the Nature Conservancy of Canada (NCC) and Ontario Nature purchase or assume responsibility for the care of a number of properties, and Ducks Unlimited (DU), Wildlife Habitat Canada (WHC), the NCC, and government agencies collaborate to deliver the Eastern Habitat Joint Venture (EHJV) program. Ontario's 36 Conservation Authorities (CAs) work closely with municipalities throughout southern Ontario and in some northern locations to coordinate the management and protection of areas with natural and cultural heritage values.

Image by D. Paleczny

Indeed, NGOs have played a key role in the evolution of the province's collection of natural heritage areas by promoting the need for protection, urging governments to take action, and taking direct action, often through aquisition of properties with important natural values. However, limited information is available on many private natural heritage programs. This major information gap is an issue in jurisdictions throughout the world (Watkins et al., 1996), and Ontario is no exception. This technical paper catalogues public and private initiatives and strives to provide a guide for classifying natural heritage assets in Ontario.

Box 2-1. Some natural heritage area highlights in Ontario.

1883	*Public Parks Act* passed to enable towns and cities to establish parks.
1887	Queen Victoria Niagara Falls Park becomes Ontario's first protected area.
1893	Algonquin is designated as Ontario's first Provincial Park.
1913	The first *Parks Act* is passed and Quetico Park is established.
1917	Government of Ontario initiates the Crown Game Preserve system.
	Government of Canada initiates work to establish Migratory Bird Sanctuaries.
1922	Government of Ontario initiates the Agreement Forest program.
1946	Conservation Authorities are created.
1954	A stronger *Provincial Parks Act* is passed and a Division of Parks is established in the Department of Lands and Forests.
1955	The Ontario-St. Lawrence Development Commission is established to manage parks along the St. Lawrence River.
1959	The first park policy statement is read in the legislature and the *Wilderness Areas Act* is passed.
	The National Capital Commission is created by an Act of Parliament.
1960	Ontario has 72 Provincial Parks.
1961	The Nature Reserves Committee produces a list of candidate areas.
	FON establishes its first Nature Reserve.
1962	The Provincial Wildlife Management Areas program is initiated.
	The Nature Conservancy of Canada is created.
1963	The Bruce Trail Association is formed.
1965	10 new Provincial Parks are established.
1971	The Niagara Escarpment Preservation Fund is established by the Bruce Trail Association to raise funds for land acquisition.
1973	The *Canada Wildlife Act* is passed, which authorizes the establishment of National Wildlife Areas.
1975	Heritage Easements become available under the *Ontario Heritage Act*.
1976	The Man and Biosphere Program is established by UNESCO.
1978	A new Provincial Parks Policy is approved by Cabinet, providing the foundation for a systems approach to parks planning and establishment.
1981	Canada becomes the 29th contracting party to the Ramsar Convention.
1982	The Ontario Heritage Foundation, the Ministry of Natural Resources, and other partners establish the Ontario Natural Heritage League.
1983	155 Provincial Parks are designated through province-wide land use planning.
	The Areas of Natural and Scientific Interest (ANSI) program is established.
1984	The World Wildlife Fund and partners launch the Carolinian Canada program.
1985	The Niagara Escarpment Plan is completed.
1986	The North American Waterfowl Management Plan is signed.
	The French River is designated as Canada's first Canadian Heritage River.
	The Long Point National Wildlife Area is designated as Ontario's first Biosphere Reserve.
1987	Fathom Five Provincial Park is designated the first National Marine Conservation Area.
1989	World Wildlife Fund Canada initiates the Endangered Spaces campaign.
1994	Parks Canada adopts the greater ecosystem approach in policy.
	Ontario creates a new Conservation Reserve designation under the *Public Lands Act*.
1996	The Important Bird Area program is launched in Canada.
1997	Ontario establishes the new Provincial Policy Statement under the *Planning Act* requiring that new development demonstrate no negative impact on significant natural features or their ecological functions.
	The Ontario Government initiates the Lands for Life land use planning effort to complete the system of parks and protected areas.
1999	378 new Provincial Parks and Conservation Reserves are announced.
2000	Parks Canada issues the report prepared by the Panel on the Ecological Integrity of Canada's National Parks.
2001	*Oak Ridges Moraine Act*.
	The Ontario Land Trust Alliance is created.
2005	*Greenbelt Act*.
	A new Niagara Escarpment Plan is completed.
	An EA for Provincial Parks and Conservation Reserves is approved under the *Environmental Assessment Act*.
2007	The *Provincial Parks and Conservation Reserves Act* for Ontario comes into force.
2008	Premier Dalton McGuinty announces that the Ontario Government will protect more than 22.5 million hectares in the province's Far North.
2009	Bill 191 (An Act with respect to land use planning and protection in the Far North) received first reading.

Box 2-2. Examples of the natural heritage protection commitment made by a few of the many agencies and organizations working in Ontario.

Ontario Nature: *"Ontario Nature works to protect and restore the species, spaces and landscapes that represent the full diversity of nature in Ontario"* **(Ontario Nature, 2008).**

Parks Canada: *"On behalf of the people of Canada, we protect and present nationally significant examples of Canada's natural and cultural heritage and foster public understanding, appreciation and enjoyment in ways that ensure their ecological and commemorative integrity for present and future generations"* **(Parks Canada, 2008).**

The Nature Conservancy of Canada: *"The Nature Conservancy of Canada will protect areas of Biological Diversity for their intrinsic value and for the benefit of future generations"* **(NCC, 2008).**

Ontario Parks: *"To permanently protect a system of provincial parks and conservation reserves that are representative of all of Ontario's natural regions…"* **(Ontario Parks, 2008).**

Ducks Unlimited: *"Ducks Unlimited conserves, restores and manages wetlands and associated habitats for North America's waterfowl"* **(Ducks Unlimited, 2008).**

Some Natural Heritage Area Highlights in Ontario: An Historical Synopsis

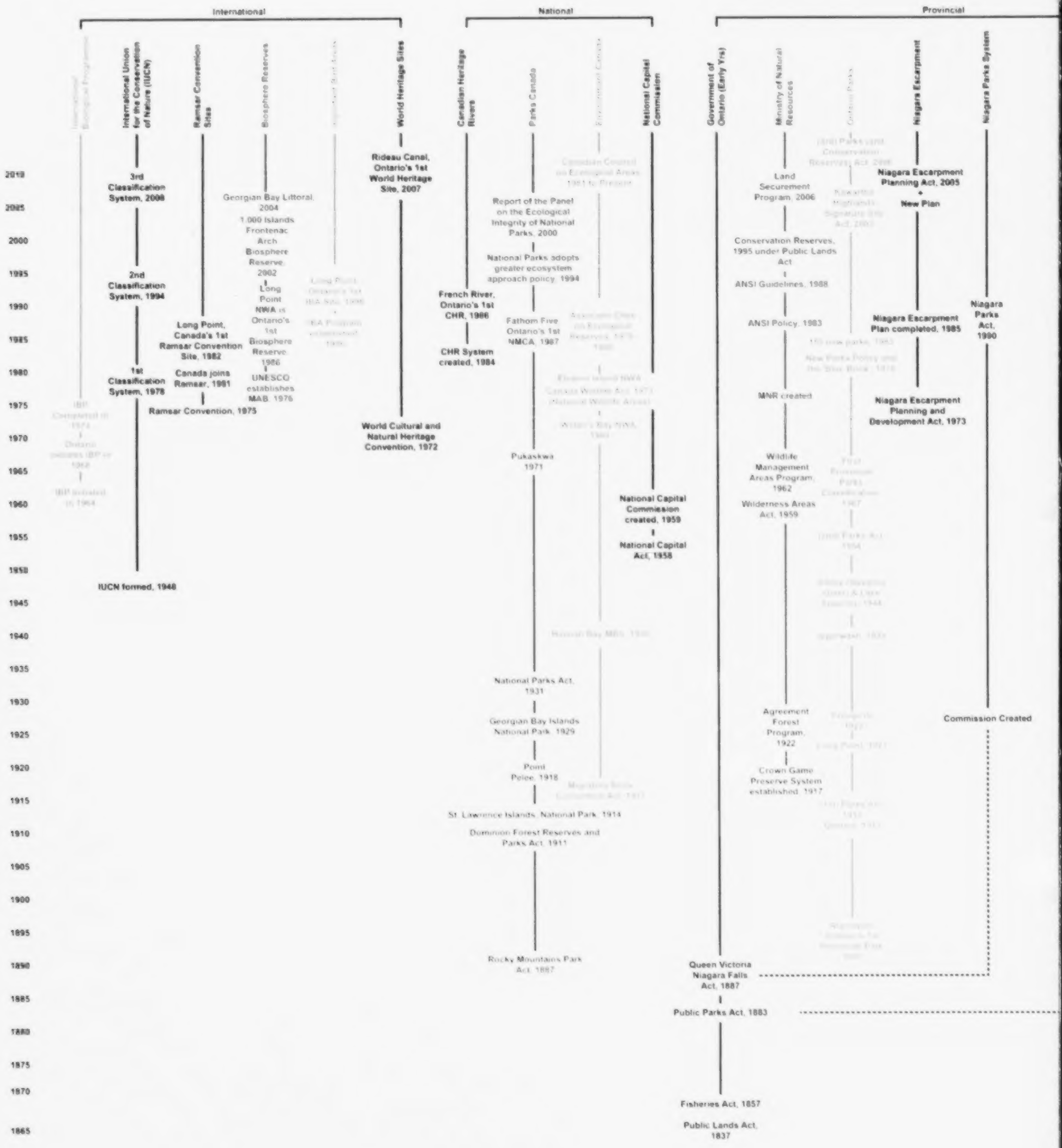
International

The International Union for the Conservation of Nature (IUCN) was founded in 1948, and over many decades has sponsored the World Congress on National Parks and Protected Areas (every four years) in addition to research, review and assessment workshops, and many international technical working groups in support of work to identify, designate, and manage protected areas (Fig. 2-1). In the 1960s, the IUCN encouraged the United Nations Education, Scientific and Cultural Organization (UNESCO) to sponsor an international assessment to identify representative habitats under the auspices of the International Biological Programme (IBP). The IBP surveys were initiated between 1963 and 1974, and in Canada ecologists developed a systematic approach to identifying candidate representative areas (MNR, 1992). In Ontario, the International Biological Programme surveys were used to identify Areas of Natural and Scientific Interest (ANSI) and candidate Nature Reserve Parks. In order to reduce confusion caused by the adoption of many different terms to describe similar kinds of protected areas and to help agencies and organizations develop protected area networks, the IUCN sponsored R.F. Dasmann (1973) to research and propose a suite of protected area management categories. Dasmann's categories were adopted by the IUCN in 1978. The system has evolved over the decades (IUCN, 1994), and today recognizes an array of specialized applications and the importance of effective management (Dudley, 2008:6).

From a strategic perspective, the 1972 United Nations Conference on the Human Environment, the World Conservation Strategy (IUCN/UNEP/WWF, 1980), publication of the Brundtland Commission's 1987 report, *Our Common Future* (WCED, 1987), and the *Global Biodiversity Strategy* (WRI/IUCN/UNEP, 1992) reinforced the need to protect ecosystem composition, structure, and function. The 1992 *Caracas Declaration* at the World Congress on National Parks and Protected Areas, and the proceedings of the Earth Summit in Rio de Janeiro also focused on the need for global conservation strategies in *Agenda 21* (MNR, 1992). In addition, the three international conventions (biodiversity, climate change, and desertification) developed at the 1992 Earth Summit continue to directly influence current and future plans for natural heritage areas around the world. For example, in 2004 the *Convention on Biological Diversity* adopted a *Program of Work on Protected Areas* (Dudley, 2008:2).

Since the 1970s, UNESCO has been involved in a number of natural heritage areas programs. For example, in 1972 UNESCO adopted the World Heritage Convention, an agreement to identify World Heritage Sites representing areas of outstanding cultural and natural heritage values. Canada ratified the World Heritage Convention in 1976 and currently has 14 World Heritage Sites including the Rideau Canal which was designated as Ontario's first World Heritage Site (cultural category) in 2007 (UNESCO, 2007a). Presently, there are no 'natural category' World Heritage Sites in Ontario. In 1976 UNESCO launched the Man and Biosphere (MAB) program to create Biosphere Reserves designed to help reconcile the conservation of biodiversity with economic development. The first of four Biosphere Reserves

Figure 2-1. Examples of the evolution of natural heritage area agenices and organizations in Ontario.


International
National
Provincial
International Biological Programme
International Union for the Conservation of Nature (IUCN)
Ramsar Convention Sites
Biosphere Reserves
Important Bird Areas
World Heritage Sites
Canadian Heritage Rivers
Parks Canada
Environment Canada
National Capital Commission
Government of Ontario (Early Yrs)
Ministry of Natural Resources
Ontario Parks
Niagara Escarpment
Niagara Parks System
2010
2005
2000
1995
1990
1985
1980
1975
1970
1965
1960
1955
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1945
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1935
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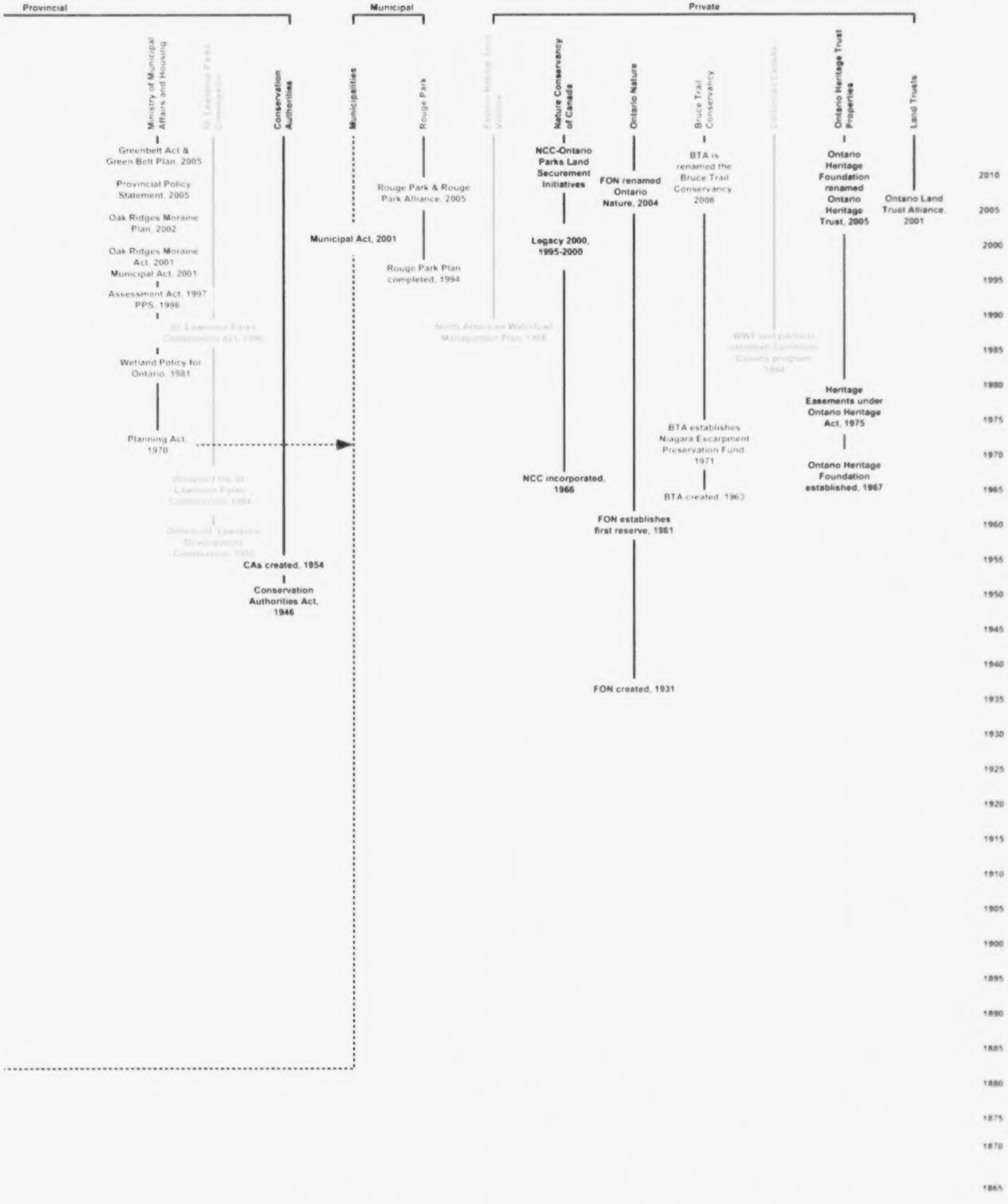
1875
1870
1865
IBP Completed in 1974
Ontario initiates IBP in 1968
IBP initiated in 1964
3rd Classification System, 2008
2nd Classification System, 1994
1st Classification System, 1978
IUCN formed, 1948
Long Point, Canada's 1st Ramsar Convention Site, 1982
Canada joins Ramsar, 1981
Ramsar Convention, 1975
Georgian Bay Littoral, 2004
1,000 Islands Frontenac Arch Biosphere Reserve, 2002
Long Point NWA is Ontario's 1st Biosphere Reserve, 1986
UNESCO establishes MAB, 1976
Long Point, Ontario's 1st IBA Site, 1996
IBA Program established, 1985
Rideau Canal, Ontario's 1st World Heritage Site, 2007
World Cultural and Natural Heritage Convention, 1972
French River, Ontario's 1st CHR, 1986
CHR System created, 1984
Report of the Panel on the Ecological Integrity of National Parks, 2000
National Parks adopts greater ecosystem approach policy, 1994
Fathom Five Ontario's 1st NMCA, 1987
Pukaskwa 1971
National Parks Act, 1931
Georgian Bay Islands National Park, 1929
Point Pelee, 1918
St. Lawrence Islands, National Park, 1914
Dominion Forest Reserves and Parks Act, 1911
Rocky Mountains Park Act, 1887
Canadian Council on Ecological Areas 1981 to Present
Canada Wildlife Act, 1973 (National Wildlife Areas)
Hannah Bay MBS, 1939
Migratory Birds Convention Act, 1917
National Capital Commission created, 1959
National Capital Act, 1958
Queen Victoria Niagara Falls Act, 1887
Public Parks Act, 1883
Fisheries Act, 1857
Public Lands Act, 1837
Land Securement Program, 2006
Conservation Reserves, 1995 under Public Lands Act
ANSI Guidelines, 1988
ANSI Policy, 1983
MNR created
Wildlife Management Areas Program, 1962
Wilderness Areas Act, 1959
Agreement Forest Program, 1922
Crown Game Preserve System established, 1917
(3rd) Parks (and Conservation Reserves) Act, 2006
Kawartha Highlands Signature Site Act, 2003
150 new parks, 1983
New Parks Policy and the 'Blue Book', 1978
First Provincial Parks Classification, 1967
(2nd) Parks Act, 1954
Sibley (Sleeping Giant) & Lake Superior, 1944
Ipperwash, 1938
Presqu'ile, 1922
Long Point, 1921
(1st) Parks Act, 1913
Quetico, 1913
Algonquin, Ontario's 1st Provincial Park, 1893
Niagara Escarpment Planning Act, 2005
+
New Plan
Niagara Escarpment Plan completed, 1985
Niagara Escarpment Planning and Development Act, 1973
Niagara Parks Act, 1990
Commission Created


Provincial
Municipal
Private
Ministry of Municipal Affairs and Housing
St. Lawrence Parks Commission
Conservation Authorities
Municipalities
Rouge Park
Eastern Habitat Joint Venture
Nature Conservancy of Canada
Ontario Nature
Bruce Trail Conservancy
Carolinian Canada
Ontario Heritage Trust Properties
Land Trusts
Greenbelt Act & Green Belt Plan, 2005
Provincial Policy Statement, 2005
Oak Ridges Moraine Plan, 2002
Oak Ridges Moraine Act, 2001
Municipal Act, 2001
Assessment Act, 1997
PPS, 1996
St. Lawrence Parks Commission Act, 1990
Wetland Policy for Ontario, 1981
Planning Act, 1970
Renamed the St. Lawrence Parks Commission, 1968
Ontario-St. Lawrence Development Commission, 1955
CAs created, 1954
Conservation Authorities Act, 1946
Municipal Act, 2001
Rouge Park & Rouge Park Alliance, 2005
Rouge Park Plan completed, 1994
North American Waterfowl Management Plan, 1986
NCC-Ontario Parks Land Securement Initiatives
Legacy 2000, 1995-2000
NCC incorporated, 1966
FON renamed Ontario Nature, 2004
FON establishes first reserve, 1961
FON created, 1931
BTA is renamed the Bruce Trail Conservancy, 2008
BTA establishes Niagara Escarpment Preservation Fund 1971
BTA created, 1963
WWF and partners establish Carolinian Canada program, 1984
Ontario Heritage Foundation renamed Ontario Heritage Trust, 2005
Heritage Easements under Ontario Heritage Act, 1975
Ontario Heritage Foundation established, 1967
Ontario Land Trust Alliance, 2001
2010
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1865

in Ontario was established in 1986 at Long Point (UNESCO, 2007b).

Additional natural heritage areas in Ontario that are recognized under the auspices of an international program include Ramsar Convention Sites and Important Bird Areas (IBAs). In 1981, Canada joined the Ramsar Convention in support of a commitment to conservation and wise-use of wetlands. Eight Ramsar Convention sites have been designated in Ontario. The first Ramsar Convention Site was established at Long Point in 1982 (Ramsar Convention Secretariat, 2007). The Canadian program to identify Important Bird Areas was established by Canadian BirdLife International partners, Nature Canada, and Bird Studies Canada (BSC) in 1996 (IBA Canada, 2004). Currently 70 Important Bird Area sites have been identified in Ontario. Long Point was recognized as Canada's first globally significant Important Bird Area in 1996 (BSC, 2007).

National

By the mid-19th Century, settlement had breached the last vestiges of untamed wilderness in the United States south of the Canadian border and in parts of Canada, particularly southwestern Ontario. And concern for the healthy future of North America's natural assets emerged as an issue through the work and writings of Henry Thoreau (1817-1862) and John Muir (1838-1914) who argued for the preservation of nature, while others like Gifford Pinchot (1865-1946) and Aldo Leopold (1887-1948) worked to limit rapid and unsustainable exploitation of forests and wildlife and to entrench a conservation ethic in the treatment of natural assets.

In the late 19th Century, sightseeing opportunities and access to the medicinal hot springs motivated the Government of Canada to establish Dominion Parks like Rocky Mountain (later renamed Banff), Yoho, and Glacier National Parks (Lothian, 1976; MNR, 1992). It appears that the views of Muir and Pinchot had an impact on the people responsible for administering Canada's first wilderness areas. For example, Howard Douglas, the 1897 superintendent of Rocky Mountain Park, advocated the preservation of wildlife and habitat as a national resource. And Clifford Sifton (1861-1929), Minister of the Interior under Sir Wilfrid Laurier from 1896 to 1905, promoted Gifford Pinchot's wise use philosophy, and organized numerous projects to assess the commercial value of fisheries and wildlife in Canada. In Ontario, St. Lawrence Islands National Park was established in 1914, Point Pelee National Park in 1918, Georgian Bay Islands National Park in 1929, Pukaskwa in the 1970s, and Bruce Peninsula National Park in 1987 (Parks Canada, 1997).

During the 20th century, Parks Canada also established National Marine Conservation Areas (NMCAs), including one in Ontario (Parks Canada, 2006a), a network of National Historic Sites, including 257 in Ontario (Parks Canada, 2005), and collaborated with the provinces to recognize Canadian Heritage Rivers of which 11 are found in Ontario (Canadian Heritage Rivers Board, 2006). In 2000, the Panel on the Ecological Integrity of Canada's National Parks filed 127 recommendations designed to enhance ecologically sustainable management in Canada's National Parks (Parks Canada Agency, 2000a, b).

Other federal agencies employ protected area programs as well. Environment Canada manages nine Migratory Bird Sanctuaries in Ontario (established between 1939 and 1971) under the *Migratory Birds Convention Act* and the *Canada Wildlife Act*, and 10 National Wildlife Areas (NWAs) (established between 1969 and 1978) under the *Canada Wildlife Act*. A Marine Wildlife Area (MWA) program has also been initiated by Environment Canada, whereby MWAs can be established under authority of the *Canada Wildlife Act* in coastal waters beyond the 12-nautical mile territorial sea. Under the 1997 *Oceans Act*, the Department of Fisheries and Oceans (DFO) can establish a network of Marine Protected Areas (MPAs) in marine waters (DFO, 1999). To date no Marine Protected Areas have been established off the coastal shores of Hudson Bay and James Bay. The National Capital Commission was formed in 1959 by the Government of Canada to manage and protect green space around Ottawa in Ontario and Quebec. Currently, about 20,000 ha are managed by the National Capital Commission in Ontario (National Capital Commission, 1996).

In September 1989 the World Wildlife Fund launched its ten year Endangered Spaces Campaign to "*conserve Canada's biological diversity by protecting a representative sample of each of the country's natural regions by the year 2000*" (WWF, 1990). The campaign was designed to encourage federal, provincial, and territorial agencies to attain a protected area target of 12% by establishing new parks and other protected areas. Although they did not achieve the 12% target, Canadian jurisdictions did increase the area protected during the period of the campaign (WWF, 2000; Nelson, 2003), and since then, important progress in establishing and managing natural heritage areas has been achieved.

Provincial

In concert with early federal programs, provincial agencies initiated natural heritage area programs as well. For example, in 1893 the Government of Ontario established Algonquin National Park (under provincial jurisdiction despite the name) in legislation as a "*public park and forest reservation, fish and game preserve, health resort and pleasure ground for the benefit and advantage and enjoyment of the people of the province*" (MNR 1992:4). And Rondeau Provincial Park was created in 1894 in response to demand for cottaging opportunities. In 1913, the Government of Ontario passed the first *Parks Act* to set aside Crown land for parks. Six additional parks were established prior to 1945: Quetico (1913), Long Point (1921), Presqu'ile (1922), Ipperwash (1938), Sibley (1944, now called Sleeping Giant), and Lake Superior (1944). Since the end of World War II, the Provincial Parks program has been expanded to include 329 parks covering almost 7,900,000 ha. A revised *Provincial Parks Act* was passed in 1954 and a new provincial parks policy was approved in 1978 and reconfirmed in 1992. Most of the additions to Ontario's Provincial Parks system resulted from two major land use planning programs that were completed in 1983 (e.g., see MNR, 1983a, b, c) and in 1999 (see MNR, 1999a). Conservation Reserves (CRs) were created as a new protected area designation in 1994 through a regulation under the *Public Lands Act*. Since its inception, MNR's Conservation Reserves program has been expanded to 292 sites encompassing almost 1,500,000 ha. In 2004, a protected areas legislative review was initiated, and after extensive consultation, the new *Provincial Parks and Conservation Reserves Act* was approved by Ontario's Legislative Assembly in June 2006, which came into effect on September 4, 2007.

Ontario's Far North area encompasses 42% of Ontario's land mass and is one of Earth's largest intact ecosystems comprised of vast expanses of boreal forest, wetlands, and coastal ecosystems that provide habitat for the Polar Bear (*Ursus maritimus*), Wolverine (*Gulo gulo*), Woodland Caribou (*Rangifer tarandus caribou*), Bald Eagle (*Haliaeetus leucocephalus*), Lake Trout (*Salvelinus namaycush*), Walleye (*Stizostedion vitreum*), and thousands of other species of plants and animals. In July 2008 Premier Dalton McGuinty announced that 22.5 million hectares (more than half of the Far North area) will be formally protected in an interconnected network of conservation lands designed to encompass key ecological features such as habitat for endangered species (McGuinty, 2008). These landscapes and waterscapes will be permanently protected through an inclusive Far North planning process involving First Nation and Métis communities, northerners, the resource sector, NGOs, and technical experts (Government of Ontario, 2008a). On 2 June 2009, Bill 191 (An Act with respect to land use planning and protection in the Far North) received first reading in the Legislative Assembly of Ontario. Bill 191 contains four objectives for land use planning in the Far North, all of which have significant implications to natural heritage areas management:

1. "*A significant role of First Nations in the planning.*
2. *The protection of areas of cultural value in the Far North and the protection of ecological systems in the Far North by including at least 225,000 square kilometres of the Far North in an interconnected network of protected areas.*
3. *The maintenance of biological diversity, ecological processes and ecological functions, including the storage and sequestration of carbon in the Far North.*
4. *Enabling sustainable economic development that benefits the First Nations*" (Government of Ontario, 2009a).

The *Conservation Authorities Act* was passed in 1946 and the Conservation Authorities were established in southern Ontario in 1954 to manage and protect water resources on a watershed basis. Conservation Authorities currently manage significant areas of land for water management, nature conservation, and recreation (Conservation Ontario, 2005a, b). The *Conservation Authorities Act* was also amended to give Conservation Authorities the power to acquire lands for recreational purposes. Currently, 36 Conservation Authorities work to protect and manage natural assets throughout southern Ontario and in parts of northern Ontario.

A number of other types of natural hertitage areas are employed in Ontario to care for areas of natural and/or historical significance including Wilderness Areas, Provincially Significant Wetlands, and Forest Management Reserves. Despite its limitations, the 1959 *Wilderness Areas Act* was one of the first Canadian statutes to recognize the concept of 'natural reserves' (Killian, 1993:134-135). Twenty-five Wilderness Areas were created in 1960 in Ontario. Since then a number of these Wilderness Areas have been incorporated into Provincial Parks and Conservation Reserves. Provincially Significant Wetlands are protected from 'development' and 'site alteration' as defined in the *Provincial Policy Statement* (MMAH, 2005a). Provincially Significant Wetlands are identified through application of the Provincial Wetlands Evaluation System established by the Government of Ontario. Forest Management Reserves (Areas of Concern) are identified and established to protect natural or cultural values during the forest management planning process and during harvest operations.

Through the *Ontario Living Legacy (OLL) Land Use Strategy* the MNR introduced a number of new land-use designations in 1999 (MNR, 1999a). Forest Reserves and Enhanced Management Areas (EMA) were created to protect natural heritage and special landscape features while providing a variety of resources and recreational uses.

In southern Ontario, two unique and long-standing parks systems protect and provide access to a variety of natural and cultural values – the Niagara Parks system was created in 1885 and the Parks of St. Lawrence system was created in 1955.

A variety of habitat and species management designations are used to protect and manage fish and wildlife assets including the Crown Game Preserve system established in 1917 (Pileggi and Gray, 1991), the Fish Sanctuary program established around 1930 (Legislative Assembly of Ontario, 1930), and the Wildlife Management Area system organized in the 1960s (MNR, 1976a).

Management of the Niagara Escarpment, designated a Biosphere Reserve in 1990, is guided by the *Niagara Escarpment Planning and Development Act* (1973) and overseen by the Niagara Escarpment Commission (NEC) with a primary purpose to implement the 2005 *Niagara Escarpment Plan*. The land within the Niagara Escarpment Parks and Open Space System is owned and managed by Conservation Authorities, the Ministry of Natural Resources, the Ontario Heritage Trust, Environment Canada, Parks Canada, the St. Lawrence Seaway Commission, and the Niagara Parks Commission (NEC, 2005).

Management of the Oak Ridges Moraine is guided by the 2001 *Oak Ridges Moraine Conservation Act*, which provides the authority for the establishment of the *Oak Ridges Moraine Conservation Plan*. The *Greenbelt Act* and the *Greenbelt Plan* were introduced in 2005 to provide a foundation for the *Great Golden Horseshoe Growth Plan*, an overarching strategy designed to provide direction on urban structure, urban growth, and protected areas in southern Ontario (MMAH, 2005b). The *Greenbelt Plan* includes lands and waters in the *Niagara Escarpment Plan* and the *Oak Ridges Moraine Conservation Plan*, and compliments other natural heritage initiatives such as the *Rouge North Management Plan* (MMAH, 2005b). The Greenbelt represents a commitment to link and protect natural heritage and water assets to sustain ecological and human health in densely populated areas of southern Ontario. The Lake Simcoe Watershed, which encompasses parts of the Oak Ridges Moraine and the Greenbelt, is managed under the auspices of the *Lake Simcoe Protection Act*, 2008 (Statutes of Ontario, 2008) and the *Lake Simcoe Protection Plan* (MOE, MNR, and the LSRCA, 2009).

The Niagara Escarpment, the Oak Ridges Moraine, the Lake Simcoe Watershed, and the Greenbelt exemplify modern programs designed to protect and manage large ecosystems through collaboration and partnership. For example, the purpose of the *Oak Ridges Moraine Conservation Plan* is to protect the moraine's ecological and hydrological features and functions while providing stakeholders land use and resource management planning direction (MMAH, 2002).

Image by P.A. Gray

Municipal

There are thousands of municipal parks in Ontario managed under the *Municipal Act*, which allows municipalities to pass by-laws with respect to culture, parks, recreation, and heritage (Statutes of Ontario, 2001a). In addition, municipalities use the *Provincial Policy Statement* (PPS) under the *Planning Act* to provide for the protection of wetlands, woodlands, valleylands, wildlife habitat, and Areas of Natural and Scientific Interest held by private landowners or non-Crown agencies.

A diverse network of natural forest, wetlands, bluffs, and human-dominated landscapes in the Greater Toronto Area is protected in Rouge Park. Created in 1995, Rouge Park is cared for by the Rouge Park Alliance in partnership with national, provincial, regional, and local interests.

Private

About 13% of Ontario is held in private ownership, mostly in southern Ontario. Private stewardship by individuals and NGOs provides a valuable addition to Ontario's natural heritage estate. For example, organizations like Ontario Nature (formerly FON), The Nature Conservancy of Canada (NCC), the Ontario Heritage Trust, and the Land Trusts make significant contributions through acquisition and protection programs. Ontario Nature was established in 1931 to advocate for parks, sanctuaries, wilderness, and other natural assets on behalf of interested Ontarians (Lompart and Riley, 1997:9). Ontario Nature currently owns 21 Nature Reserves in Ontario. The NCC and partners (e.g., MNR) have secured a number of properties as well. Some notable sites acquired include the Carden Alvar, Manitoulin Alvar, Strawberry Island, Alfred Bog, and Bickford Oak Woods. It is proposed that these sites be regulated as Provincial Parks or Conservation Reserves to support permanent protection of their significant natural heritage values.

Established in 1967, the Ontario Heritage Trust is involved in identifying, preserving, protecting, and promoting Ontario's heritage through a number of heritage sites and natural heritage properties. Similar to the Ontario Heritage Trust, Land Trusts protect and manage areas of natural, cultural, and historical value. They are generally non-profit, registered charities that rely on volunteers. In Ontario, 38 Land Trusts are members of the Ontario Land Trust Alliance (OLTA), which serves to educate the public about land conservation, promote good land stewardship practices, and work with private landowners to protect valuable land.

The protection of quality wetland and upland habitats to assure the survival of waterfowl populations on private and Crown land is aided by the Eastern Habitat Joint Venture (EHJV). In support of the North American Waterfowl Management Plan (NAWMP), signed in 1986, the EHJV has worked to secure, enhance, create, restore, and manage wetlands and related uplands.

Additional private land natural heritage area programs include Bruce Trail Conservancy properties (BTC; formerly the Bruce Trail Association) and Carolinian Canada Sites. Established in 1963, the BTC has facilitated the creation of the Bruce Trail, Canada's oldest and longest footpath (BTA, 2007). The Bruce Trail is an essential part of the Niagara Escarpment Parks and Open Space System, linking parks and natural features. To address protection needs in the Carolinian Zone, a non-profit partnership between government agencies and NGOs was organized and named Carolinian Canada in 1984. The Carolinian Canada Coalition works to protect and increase the size and quality of natural communities within 38 Signature Sites and 140 Core Habitats under the auspices of the Big Picture Project (Carolinian Canada Coalition, 2007).

Provincial tax incentive programs (e.g., the Managed Forest Tax Incentive Program [MFTIP] and the Conservation Land Tax Incentive Program [CLTIP]) recognize, encourage, and support the protection of significant conservation lands or the maintenance of healthy forests on private land. Landowners who apply and qualify for the CLTIP have eligible portions of their property exempt from taxation. Landowners who apply and qualify for the MFTIP have eligible portions of their property classified and assessed for property tax purposes as managed forest. The land is then taxed at 25% of the municipal tax rate set out for municipal properties.

What is a Protected Area?

Many definitions of a protected area have been advanced in recent years. Some of the more highly profiled definitions include:

- *"An area dedicated primarily to protection and enjoyment of natural and cultural heritage, to maintenance of biodiversity, and/or maintenance of life-support systems"* (IUCN/UNEP/WWF, 1991:211).
- *"A legally established land or water area under either public or private ownership that is regulated to achieve specific conservation objectives"* (WRI/IUCN/UNEP, 1992:230).
- *"An area of land and/or sea especially dedicated to the protection of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means"* (IUCN, 1994:6).
- *"A clearly defined geographical space, recognized, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values"* (Dudley, 2008:9).
- *"A geographically defined area that is designed or regulated and managed to achieve specific conservation objectives"* (Convention on Biological Diversity, 1992:6; Environment Canada, 1995).
- *"...portions of ecosystems in which human activities are carefully managed and certain activities that harm ecological processes are prohibited"* (Environment Canada, 1996:14-18).
- *"Those places most inspirational and spiritual, most critical to the survival of species and ecosystems, most crucial in safeguarding food, air, and water, and most essential in stabilizing climate, most unique in cultural and natural heritage and therefore most deserving of humankind's special care"* (WCPA, 2003).

Two central ideas are consistent in these and many other definitions:

- We assign these areas boundaries and protect them mostly through regulation.
- We afford these areas special consideration with respect to permitted human activities in, around, below, and above them.

Historically, agreement on the strength of and intent of a generic definition of a 'protected area' has been elusive. Some maintain that 'protected area' should be used only to denote strictly managed, legislated, and regulated sites such as National and Provincial Parks. For example, the Government of Ontario reserves the use of 'protected area' for regulated Provincial Parks, Conservation Reserves, Wilderness Areas, and National Parks. And formal reporting on the status of protected areas in Ontario has been limited to these types of sites. However, given that other types of designations can work in association with traditional 'protected areas' to help maintain functioning ecosystems and biodiversity, interest in acknowledging these sites has emerged in agencies, organizations, and institutions in recent decades (Mitchell et al., 2002; Neave and Neave, 2005; Phillips, 2002; Swinnerton and Buggey, 2004). For the purposes of this document, the phrase 'natural heritage areas' is used to denote the family of protected areas and other designations that collectively contribute to the maintenance and enhancement of Ontario's biodiversity.

image by D. Paleczny

Given that a primary objective of this document is to assess Ontario's various natural heritage areas in the context of the IUCN protected area management categories, we use the most recent IUCN definition of a protected area as the basis for an evaluation of the classification system: *"A clearly defined geographical space, recognized, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values"* (Dudley, 2008:9).

IUCN developed this definition during extensive discussions about the definition, its strengths and weaknesses, and criteria to distinguish each protected area category. With this definition and an associated philosophy in mind, we developed a standard of protection in order to compare Ontario's natural heritage areas to the IUCN classification system. Fourty-five types of natural heritage designations describing the most celebrated and widely recognized categories and conservation mechanisms in Ontario are reviewed in this report (Box 2-3). Some categories are treated more thoroughly than others and a few types of areas (e.g., First Nations lands, university training and research properties, and some government lands such as military reserves) are not described. It is anticipated that future versions of this report will update natural heritage area descriptions, statistics, and maps, and include descriptions of these few missing categories. Nonetheless, this report contains a description of most of Ontario's natural heritage area types.

Each type of natural heritage area in Ontario is characterized by a unique suite of strengths and weaknesses. These areas provide varying degrees of protection resulting in some areas that are **'fully protected'** (i.e., meet protection standards comparable to National and Provincial Parks) and some areas that are **'partially protected'** (i.e., areas that are protected and/or managed according to less stringent or less comprehensive standards) (Paleczny et al., 2002). This dichotomy has been adopted in this report because it offers a way to define and describe the level of protection within the wider family of natural heritage areas in Ontario. It also recognizes that many approaches to establishing and mapping natural heritage areas are valid and can make a substantial contribution to conservation strategies.

Criteria for Determining the Degree of Protection

In its publication *A Protected Areas Vision for Canada*, the Canadian Environmental Advisory Committee (CEAC, 1991:13) defines a network of protected areas *"as a collection of natural areas that is protected by legislation, regulation, or land-use policy"*. It includes ecological reserves, national/provincial/territorial parks, wildlife refuges, and other designated areas, including private land holdings that serve to:

1. Protect a complete range of natural regions and wilderness landscapes and seascapes.
2. Ensure the protection of flora and fauna within their natural habitat.
3. Exclude commercial resource activities such as forestry, mining, agriculture, and hydroelectric power developments.
4. Fulfil Canada's international commitments and obligations to protect species and ecosystems.

Drawing on statements made in *A Protected Areas Vision for Canada* (CEAC, 1991), the *Ontario Provincial Parks Policy* (MNR, 1978a), the *Ontario Provincial Parks Planning and Management Policies* (MNR, 1992), *Nature's Best: Ontario's Parks and Protected Areas: A Framework and Action Plan* (MNR, 1997a), the *Provincial Parks and Conservation Reserves Act* (Statutes of Ontario, 2006), and other reports and statutes, we evaluated the degree of protection for 45 types of natural heritage areas in Ontario (Box 2-3) on the basis of broadly accepted criteria:

1. The scope of protection (e.g., protection objective).
2. The strength of the protection commitment (e.g., legislation, policy, and management plans).
3. The permanence of the commitment.
4. The quality of protection (e.g., type of human activities permitted in protected areas).
5. Protection timing (e.g., all year or seasonal).

These criteria are consistent with international standards defined by the IUCN protected area management categories described in Chapter 3.

Box 2-3. Types of 'fully' and 'partially' protected natural heritage areas examined in this provisional assessment.

INTERNATIONAL
International Biological Programme Sites
Ramsar Convention Sites
Biosphere Reserves
World Heritage Sites
Important Bird Areas

NATIONAL
National Parks
National Marine Conservation Areas
National Historic Sites
Canadian Heritage Rivers
Migratory Bird Sanctuaries
National Wildlife Areas
Marine Wildlife Areas
Marine Protected Areas
National Capital Commission Lands

PROVINCIAL
Provincial Parks
Conservation Reserves
Wilderness Areas
Forest Reserves
Enhanced Management Areas
Provincially Significant Wetlands
Areas of Natural and Scientific Interest
Wildlife Management Areas
Fish Sanctuaries
Crown Game Preserves
Niagara Parks System
Parks of the St. Lawrence
Conservation Authority Properties
Forest Management Reserves
Restricted Access Areas
The Niagara Escarpment
Oak Ridges Moraine
The Greenbelt
The Lake Simcoe Watershed

MUNICIPAL
Municipal Parks and Open Spaces
Natural Heritage Features in Urban and Rural Areas
Rouge Park

PRIVATE
Eastern Habitat Joint Venture Programs
Nature Conservancy of Canada – Nature Preserves
Ontario Nature's Nature Reserves
Bruce Trail Conservancy Properties
Carolinian Canada Sites
Provincial Tax Incentive Programs (MFTIP and CLTIP)
Ontario Heritage Trust Properties
Conservation Easements
Land Trust Properties

In order to qualify as 'fully protected' in Ontario, a natural heritage area should at least:

1. Be administered and managed according to a primary natural and cultural heritage protection objective.
2. Be protected by federal or provincial-level legislation or policy or a comparable level of commitment.
3. Be protected in perpetuity.
4. Prohibit industrial uses (e.g., logging, mining, hydro-electric development, or large scale commercial development) and sustainably manage recreational activities in accordance with the values for which the area has been protected.
5. Be protected year-round.

Areas that do not meet the minimum standard for all criteria in the 'fully protected' category are then considered for inclusion in the 'partially protected' category. Areas that do not meet all of the criteria for inclusion in the 'partially protected' area category are listed as 'not protected'. Box 2-4 summarizes the criteria described in more detail on the following pages.

1. Protection Objective

Some types of protected areas are established and managed according to an explicit and strong protection objective, while others are not.

Fully Protected Area Criteria:

- **Protection is the Primary Objective:** An area must be managed under the auspices of an explicit and primary protection objective to qualify as a 'fully protected' area.

Partially Protected Area Criteria:

- **Protection is Secondary:** An area that is not managed according to a primary protection objective, but is managed according to a secondary protection objective, may qualify as a 'partially protected' area.

Box 2-4. Proposed criteria to establish a protection standard for natural heritage areas in Ontario.

Degree of Protection					
Degree of Protection	Protection Objectives	Strength of Commitment	Permanence of Commitment	Quality of Protection	Timing of Protection
Fully Protected	Primary and explicit	Legislation Regulation Easement Land trust Policy[1] Agreement[1]	In perpetuity	Protects ecosystem function (habitat) by excluding industrial activities and large scale development AND Protects ecosystem composition (species) by complete protection or formal sustainable management	Year-round
Partially Protected	Secondary, but permits conservation	Policy[1] Agreement[1] Strategy Plan Guideline	Not protected in perpetuity[2] Specific pre-determined period (e.g., 1-20 years)	Protects ecosystem function (habitat) by excluding industrial activities and large scale development OR Protects ecosystem composition (species) by complete protection or formal sustainable management	Periods of the year

Notes:

[1] Some policies and agreements provide stronger commitment to the protection of an area and species inhabiting the area (see discussion in the text).

[2] For example, a landowner could request that a site be removed as a designated area.

2. Strength of the Commitment

The strength of the commitment to protect an area often is judged on the basis of the legal tools (or lack of) used to establish and manage that area.

Fully Protected Area Criteria:

- **Legislation:** An area established through an Act of Parliament (e.g., National Park) is a strong and significant commitment to protection because it is based on formal consultation, management planning, and a legislative process. Legislated areas are assigned a high rank. Private land and NGO reserves that are protected, and through legal instruments are managed according to private or corporate policy, can equate well to a legislative commitment by government and are assigned a high rank as well.
- **Regulation:** A regulation established under the auspices of an Act of Parliament represents a strong legal commitment to protect an area even though regulations are more easily modified than legislation. Municipal by-laws also provide a significant level of protection.
- **Easement:** On private land, Conservation Easements are normally based in legislation (e.g., *Ontario Heritage Act*), or on legally binding agreements between two parties.
- **Policy:** Government action to establish national-level, provincial-level, or municipal-level policy serves to translate legislative and regulatory direction into action. This category also includes explicit policy used by NGOs in response to commitments to protect natural heritage sites. It is important to ensure that 'fully protected' area

policy cannot be modified through day-to-day activities of the organizations responsible for these areas.

- **Agreements:** Formal, long-term agreements that bind the parties to defined programs can provide an effective mechanism for the management of natural heritage areas as 'fully protected' areas.

Partially Protected Area Criteria:

- **Policy:** If policy can be modified separate from, or in the absence of, legislation and regulation, this level of commitment signifies a 'partially protected' area. In the case of non-regulated areas, if a policy can be modified in the absence of an explicit review process (e.g., a vote by members of the organization), the area is assigned a 'partially protected' ranking.
- **Agreements:** An agreement that is not legally binding is not as strong as legislation, regulation, some policy, and a legally binding agreement, and therefore the area is considered 'partially protected'.
- **Strategies, Management Plans, and Guidelines:** Operational strategies, plans, and guidelines are written by agencies and organizations to provide detailed management direction to on-site managers. Although these tools may represent an interpretation of legislation, regulation, policy, or legally-binding agreement, they can be more easily modified, replaced, or discarded than legislation, regulation, policy, or formal agreement. Therefore, an area that is managed only under the auspices of a strategy, management plan, or guideline, qualifies as a 'partially protected' area.

3. Permanence of the Commitment

The strength of the commitment to protect an area also is contingent upon the length of time the area will be protected.

Fully Protected Area Criteria:

- **Protected in Perpetuity:** The area is protected in perpetuity – it is a long-term commitment by an agency, organization, or individual landowner.
- **Long-Term Agreement:** A legally binding long-term agreement of not less than 99 years may be considered to qualify an area as 'fully protected'.

Image by P.A. Gray

Partially Protected Area Criteria:

- **Not Protected in Perpetuity:** The area is located on private land that can be deregulated, de-listed, or de-designated at the request of the landowner.
- **Short-Term Protection:** Some areas are protected for specific, pre-determined periods of time (e.g., 5 years), which reduces the strength of the protection commitment. Accordingly, any area protected for a period of less than 99 years is classified as 'partially protected'.

4. Quality of Protection

The types of human activities permitted in an area are key to meeting protection objectives. While legislated and regulated areas often are strictly managed, and human activities strictly controlled, this is not always the case. For example, many extractive activities are permitted in Crown Game Preserves (regulated under the auspices of *Fish and Wildlife Conservation Act*). By accounting for the types of human activities permitted in each area, this criterion provides managers with a generic assessment of the quality of protection. Some agencies and organizations may elect to use a gradient of prohibited-to-permitted activities. Areas in which ecosystem composition (e.g., species) and structure and function (e.g., habitat) are protected qualify as 'fully protected' areas while areas in which either habitat or species are not protected may qualify as 'partially protected' areas.

Table 2-1. A preliminary evaluation of Ontario's natural heritage areas using the proposed protections standards.

This evaluation is provided as a basis for discussion only. It is anticipated that each agency or organization will complete its own assessment of the natrual heritage areas for which it is responsible. It is important to note that the degree of protection identified in this table does not denote ecological health or condition of an area, nor does it denote the management effectiveness applied by agencies, organizations, and landowners.

Area/Mechanism in Ontario	Degree of Protection					Assessment
	Protection Objective	Strength of Commitment	Permanence	Quality	Timing	(Full, Partial, and None)
INTERNATIONAL						
International Biological Programme Sites	n/a	n/a	n/a	n/a	n/a	n/a
Ramsar Convention Sites	n/a	n/a	n/a	n/a	n/a	n/a
Biosphere Reserves	n/a	n/a	n/a	n/a	n/a	n/a
World Heritage Sites	n/a	n/a	n/a	n/a	n/a	n/a
Important Bird Areas	n/a	n/a	n/a	n/a	n/a	n/a
NATIONAL						
National Parks	Primary	Full[1]	In perpetuity	Full[1]	Year round	Full
National Marine Conservation Areas	Primary	Full	In perpetuity	Full	Year round	Full
National Historic Sites	Primary	Full	In perpetuity	Full	Year round	Full
Canadian Heritage Rivers	n/a	n/a	n/a	n/a	n/a	n/a
Migratory Bird Sanctuaries	Primary	Full	Not in perpetuity In perpetuity	Partial	Periods of the year	Partial
National Wildlife Areas	Primary	Full	In perpetuity	Full	Year round	Full
Oceans Act Marine Protected Areas	Primary	Full	In perpetuity	Full	Year round	Full
Marine Wildlife Areas	Primary	Full	In perpetuity	Full	Year round	Full
National Capital Commission Lands	Primary	Full	In perpetuity	Full & Partial	Year round	Full & Partial
PROVINCIAL						
Provincial Parks	Primary	Full	In perpetuity	Full	Year round	Full & Partial[2]
Conservation Reserves	Primary	Full	In perpetuity	Full	Year round	Full
Wilderness Areas	Primary	Full	In perpetuity	Full & Partial	Year round	Full & Partial
Forest Reserves	Secondary	Partial	Not in perpetuity	Partial	Year round	Partial
Enhanced Management Areas	Secondary	Partial	Not in perpetuity	Partial	Year round	Partial
Significant Wetlands	Primary	Full & Partial	In perpetuity & Not in perpetuity	Full & Partial	Unknown	Full & Partial
Areas of Natural and Scientific Interest	Primary	Full & Partial	In perpetuity & Not in perpetuity	Full & Partial	Year round	Full & Partial
Wildlife Management Areas	Primary	Full & Partial	In perpetuity	Full	Year round	Full & Partial
Fish Sanctuaries	Primary	Full	Not in perpetuity	Partial	Periods of the year	Partial
Crown Game Preserves	Primary	Full	In perpetuity	Partial	Year round	Partial
Niagara Parks System	Primary	Full	In perpetuity	Full, Partial, & None	Year round	Full, Partial, & None
Parks of the St. Lawrence	Primary	Full	In perpetuity	Full, Partial, & None	Year round	Full, Partial, & None
Conservation Authority Properties	Primary	Full	In perpetuity	Full & Partial	Year round	Full & Partial
Forest Management Reserves (Areas of Concern)	Primary	Partial	Specific periods	Partial	Periods of the year	Partial
Restricted Access Areas	Secondary	Partial	Not in perpetuity	Partial	Year round	Partial
The Niagara Escarpment	Primary	Full	In perpetuity	Full, Partial, & None	Year round	Full, Partial, & None
Oak Ridges Moraine	Primary	Full	In perpetuity	Full, Partial, & None	Year round	Full, Partial, & None
The Greenbelt	Primary	Full	In perpetuity	Full, Partial, & None	Year round	Full, Partial, & None
The Lake Simcoe Watershed	Primary	Full	In perpetuity	Full, Partial, & None	Year round	Full, Partial, & None

Continued on page 24

(continued from page 23)

Area/Mechanism in Ontario	Degree of Protection					Assessment
	Protection Objective	Strength of Commitment	Permanence	Quality	Timing	(Full, Partial, and None)
MUNICIPAL						
Municipal Parks and Open Space	Primary & Secondary	Full	In perpetuity & Specific periods	Full & Partial	Year round	Full & Partial
Natural Heritage Areas and Features in Urban and Rural Areas	Primary & Secondary	Full & Partial	Specific periods	Full & Partial	Year round	Full & Partial
Rouge Park	Primary	Full	In perpetuity	Full	Year round	Full
PRIVATE						
Eastern Habitat Joint Venture Programs	Primary	Full & Partial	In perpetuity & Specific periods	Full & Partial	Year round	Full & Partial
Nature Conservancy of Canada Nature Preserves	Primary	Full	In perpetuity	Full	Year round	Full
Ontario Nature's Nature Reserves	Primary	Full	In perpetuity	Full	Year round	Full
Bruce Trail Conservancy Properties	Primary	Full & Partial	In perpetuity & Specific periods	Full & Partial	Year round	Full & Partial
Carolinian Canada Signature Sites and Core Habitats	Primary	Full & Partial	In perpetuity & Specific periods	Full & Partial	Year round & Unknown	Full & Partial
Provincial Tax Incentive Programs (CLTIP and MFTIP)	Primary & Secondary	Full	Specific periods	Full & Partial	Year round	Partial
Ontario Heritage Trust Properties	Primary	Full	In perpetuity & Specific periods	Full	Year round	Full & Partial
Conservation Easements	Primary	Full	In perpetuity & Specific periods	Full	Year round	Full & Partial
Land Trust Properties	Primary	Full	In perpetuity & Specific periods	Full	Year round	Full & Partial

Notes:

[1] 'Full' and 'partial' are used in reference to the legislation-guideline continuum and the protection continuum (e.g, species and/or habitat protection) described in Box 2-4 on page 21.

[2] The Recreation-Utilization Zone in Algonquin Provincial Park may not meet IUCN protected area standards.

Fully Protected Area Criteria:

- **Habitat Protection:** The area does not include industrial activities such as logging, mining, hydro-electric development, or large-scale commercial development.
- **Species Protection:** The area protects species and/or provides for the sustainable use of some species.

Partially Protected Areas:

- **Comprehensiveness of Protection:** Either habitat or species protection described above are not employed in the management of the area.

5. Timing of Protection

Some areas are protected only for part of the year. To qualify as 'fully protected', an area must be protected for the entire year. For example, because provincial Fish Sanctuaries and federal Migratory Bird Sanctuaries are protected only for certain times during the year, they are classified as 'partially protected' areas.

Fully Protected Area Criteria:

- **Every Day of the Year:** Sites protected throughout the year can qualify as 'fully protected' areas.

Partially Protected Area Criteria:

- **Specific Periods:** Sites protected only for specific periods of the year may qualify as 'partially protected' areas.

Assessment of Natural Heritage Areas in Ontario

Sites that contribute to Ontario's suite of 'fully protected' areas (i.e., they meet the minimum protection standards) include certain designations of Crown lands managed by the Governments of Canada and Ontario, the Conservation Authorities, municipalities, and certain private lands managed by NGOs (Table 2-1). While 'fully protected' areas represent a significant proportion of Ontario's natural heritage areas, the 'partially protected' areas are also important because they protect values that contribute to objectives related to ecosystem health, social and economic health, and individual well-being.

International Designations

The standards of protection provided by international designations (e.g., Ramsar Convention Sites) are not assessed in Table 2-1 because these sites are protected under the auspices of other types of natural heritage area programs. For example, parts of the Long Point Biosphere Reserve are protected in legislation as a National Wildlife Area (the *Canada Wildlife Act*) and as a Provincial Park (the *Provincial Parks and Conservation Reserves Act*).

National Designations and Protection Mechanisms

At the national level, seven of the nine designations examined provide full protection. The Canadian Heritage River designation is not a regulatory mechanism, however, some sites will qualify as 'fully protected' if they are located within the boundaries of 'fully protected' areas such as Provincial or National Parks. Each Canadian Heritage River would need to be assessed to make this determination. Migratory Bird Sanctuaries provide protection for species but not all habitats during certain periods of the year, and therefore are designated as 'partially protected' areas.

Provincial Designations and Protection Mechanisms

At the provincial level, 13 of 19 designations examined could provide full protection. The Ministry of Natural Resources strives to protect wilderness through the establishment of Wilderness Parks and Wilderness Zones under the auspices of the *Provincial Parks and Conservation Reserves Act*. There is an older statute, the *Wilderness Areas Act* that remains in force and applies to a limited number of small areas scattered throughout Ontario. Wilderness Areas located in Provincial Parks and Conservation Reserves are 'fully protected'. However, the *Wilderness Areas Act* permits resource development in Wilderness Areas that exceed 260 ha. Therefore, Wilderness Areas greater than 260 ha located on Crown land are considered 'partially protected'. Given that none of the 11 Wilderness Areas currently located outside of Provincial Parks and Conservation Reserves are greater than 260 ha, they are all classified as 'fully protected' areas. In this regard, it is important to note that the protection area size limitations imposed by the *Wilderness Areas Act* neutralizes its usefulness as a wilderness protection mechanism.

Several mechanisms such as Provincially Significant Wetlands, Areas of Natural and Scientific Interest, Wildlife Management Areas, and Conservation Authority properties are protected to varying degrees, and require assessment on a case-by-case basis. Some sites in each category are 'fully protected', while others are 'partially protected'. Often, these areas are located inside other, more rigorously protected areas. For example, some Areas of Natural and Scientific Interest and Provincially Significant Wetlands are located and protected inside the boundaries of Provincial Parks. Most designations can be used to protect most or all natural assets within their boundaries. This is not the case for Crown Game Preserves and Fish Sanctuaries, which are managed primarily to protect species populations but not habitat. Therefore, these two types of areas qualify as 'partially protected' sites. Most designations provide year-round protection of all selected natural asset values in the natural heritage area. Fish Sanctuaries do not and therefore are assigned a 'partially protected' status.

Land use designations on the Niagara Escarpment, Oak Ridges Moraine, in the Lake Simcoe Watershed, in the Greenbelt, and in Parks of the St. Lawrence reflect historical land use patterns and are based on strategic decisions respecting ongoing and future permitted human activities. Several land use designations in these areas qualify as 'fully protected'.

Under the auspices of the *Ontario Living Legacy Land Use Strategy* (MNR, 1999a), a small number of areas were designated as Forest Reserves in cases where pre-existing mining lands or aggregate permits existed within recommended Provincial Parks or Conservation Reserves. The intention is that these lands will be added as Provincial Parks or Conservation Reserves if a mining claim or lease, or aggregate permit, is retired through normal processes. Therefore, Forest Reserves are assigned a 'partially protected' status. While most Restricted Access Areas were incorporated into the *Ontario Living Legacy Land Use Strategy* as Enhanced Management Areas (MNR, 1999a), a few of these sites are currently designated as General Use Areas. These Restricted Access Areas are subject to restricted access policies and therefore included as 'partially protected' areas.

In forest harvest areas, Areas of Concern are used to protect natural and cultural values during the forest management planning process and harvest operations. Although these areas are not protected in perpetuity, they do provide a degree of protection consistent with the 'partially protected' criteria.

Municipal Mechanisms

All three municipal-level designations identified could provide for the establishment of 'fully protected' areas. However, while Rouge Park is considered 'fully protected', Municipal Parks and open space as well as natural heritage features in urban and rural areas may be either 'fully' or 'partially protected', depending on how they are treated in official plans. A case-by-case analysis is required to assess each property for the degree of protection provided.

Image by P. Kor

Private Land Mechanisms

Of the 10 private land mechanisms examined, two provide full protection and six provide either full or partial protection. However, given the variety of management tools and techniques used to assemble and protect private land sites, generalization is difficult. A site-by-site evaluation may be required in order to assess the strength of protection.

Protected Area Sub-Categories and Zones and in Ontario

While Table 2-1 illustrates the application of protection standards to Ontario's different types of natural heritage areas, it is also possible to examine the degree of protection at a finer scale – subcategories and zones (Fig. 2-2).

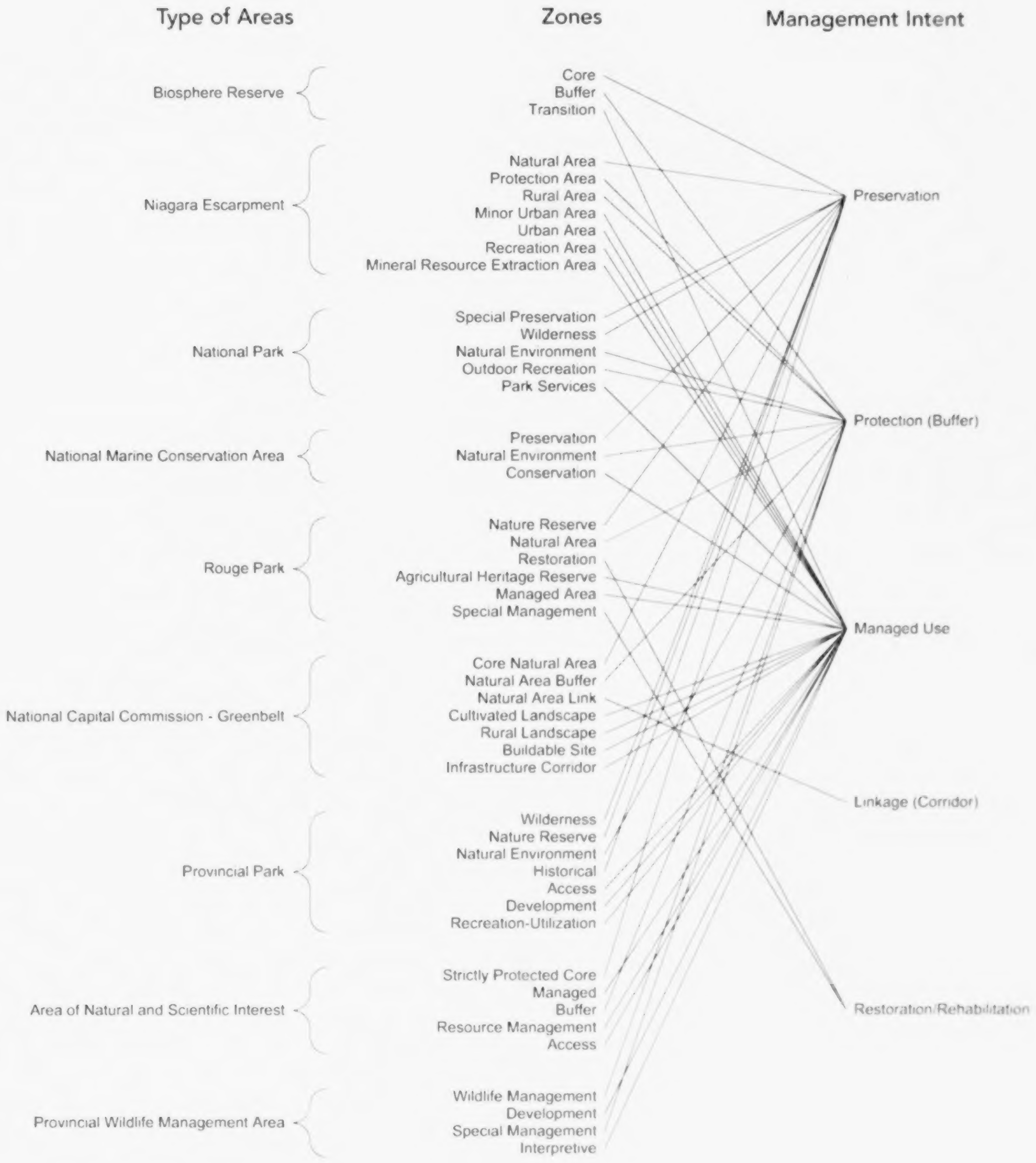


Figure 2-2. Examples of the use of zoning as a management tool in selected types of natural heritage areas in Ontario.

Ontario's natural heritage areas often have multiple designations, which complicate any enumeration of the total land and water area assigned protection status. This overlay or stacking of multiple categories would require an accurate rule-based GIS assessment in any effort to calculate the total area that is 'partially protected' or 'fully protected'. This report does not provide such an analysis.

3. Application of the IUCN Protected Area Management Categories in Ontario

Introduction

We classify to organize our assets, to assess our progress, and to ensure that our management programs reflect the values and aspirations of society. A classification system assists natural area managers in their efforts to:

- Identify the most appropriate location, number, and area of lands and waters required for natural heritage areas.
- Determine the means and measures for management.
- Develop and implement legal, policy, and management tools with which to guide human behaviour in and around natural heritage areas.
- Organize inventory and monitoring programs, and sponsor relevant research.
- Deliver effective education, extension, and training programs.
- Collaborate with other jurisdictions on a variety of programs affecting natural heritage areas (e.g., compare the various types of natural heritage areas in Ontario with designations in other jurisdictions).

Throughout the 20th century, countries around the world designed and implemented a variety of unique protected area programs. In 1933, work to clarify terminology and protected area standards was initiated at the *International Conference for the Protection of Fauna and Flora* in London, England (Machlis and Tichnell, 1985; Phillips, 2004). Four protected area categories were described (i.e., National Park, Strict Nature Reserve, Fauna and Flora Reserve, and Reserve with Prohibition for Hunting and Collecting) and used in Sub-Sahara Africa (Phillips, 2004). Subsequently at the 1942 *Pan American Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere*, delegates adopted a four-part classification comprised of National Park, National Reserve, Nature Monument, and Strict Wilderness Reserve (Brockman, 1962, in Phillips, 2004).

After World War II the number of new types of protected areas designated by countries continued to grow and by the late 1960s there were many protected area programs contributing to a complex plethora of names and definitions. This caused confusion, lack of continuity, and a reduced ability to compare and collaborate. In response, the IUCN sponsored the development of an international classification system designed to:

- Reduce confusion caused by the adoption of many different terms to describe similar kinds of protected areas.
- Inform governments of the importance of protected areas.
- Encourage governments to develop protected area systems with management aims tailored to national and local circumstances.
- Provide international standards to help global and regional accounting programs and comparisons between countries.
- Provide a framework for the collection, handling, and dissemination of data about protected areas.
- Improve communication and understanding between people engaged in conservation (Bishop et al., 2004; Dudley, 2008; IUCN, 1994; Phillips, 2000).

In the early 1970s, R.F. Dasmann (1973) developed a suite of preliminary categories of protected areas and in 1978 the IUCN published the report of the *World Congress on National Parks and Protected Areas*, which employed Dasmann's pioneering work (see IUCN, 1978).

The original classification system contained 10 categories designed to account for a range of protected areas. The 10 categories were organized into three groups: I-V were categories for which the Commission on National Parks and Protected Areas (now called the World Commission on Protected Areas – WCPA) assumed responsibility, VI-VIII were categories of importance to the IUCN but not exclusively within the scope of the Commission on National Parks and Protected Areas, and IX-X were categories describing international programs. But the designation, role, and management of protected areas in support of sustainable living initiatives evolved significantly in the 1980s and accordingly, the IUCN sponsored a re-assessment and revision of Dasmann's system in the late 1980s and early 1990s (IUCN, 1990; Phillips and Harrison, 1997). The revised system, a streamlined and simplified version of the original classification, was approved by the IUCN General Assembly in Buenos Aires (IUCN, 1994). In essence, the revised classification system accomplished the following:

- Updated the 1978 system to reflect experience gained over the years in working with the classification system categories.
- Retained the original five categories (I-V), while simplifying the terminology and format.
- Added a new category to improve the comprehensiveness of the system.
- Recognized that the system must be sufficiently flexible to accommodate the complexities of the real world.
- Provided case study examples to demonstrate application of the six protection categories.
- Provided a practical management tool (not a prescription) (IUCN, 1994:6).

The effectiveness of the 1994 IUCN category system was assessed by the two-year *Speaking a Common Language* (SaCL) research project and reviewed in September 2003 at the *Vth World Parks Congress* in Durban, South Africa. The Congress reaffirmed the conservation value and recognized the increasing global importance of the category system. The final report of the SaCL (Bishop et al., 2004), prepared for the *IUCN World Conservation Congress* in Bangkok in 2004, concluded that the original aims for designing an international classification system listed above had been at least partially fulfilled. This classification system encouraged the development of protected area networks using a range of categories and provided a common language to assist with protected area names (Bishop et al., 2004). Some management agencies and organizations prepared handbooks for their jurisdictions describing the application of the IUCN management categories (e.g., Boisseau and Gauthier, 1998; CCEA, 2007; EUROPARC-España, 2006; Ministère de l'Environnement et de la Fauna du Québec, 1998; WCPA-Australia and New Zealand Region, 2000).

Between 2004 and 2008, the IUCN sponsored substantial discussion designed to guide a review and assessment of the 1994 guidelines. The new guidelines were approved at the *IUCN World Conservation Congress* in Barcelona, Spain (Dudley, 2008). The 2008 version of the classification system:

- Provided a new definition for protected area, with an extensive analysis of the key words in the definition.
- Reaffirmed the six categories used in the 1994 classification system.
- Described how zoning can be used in the classification system.
- Revised the objectives of each category of protected area.
- Provided a detailed and comparative analysis of the six categories to assist the user in matching areas.

The guidelines in the IUCN classification system are designed for international application and flexible interpretation. The guidelines do not provide precise, textbook answers for the assessment of an area. They are intended to achieve a 'best' rather than an 'exact' fit for protected area classes.

The purpose of this chapter is to interpret and examine the application of the IUCN guidelines in an Ontario context.

Image by F.A. Gray

Definitions and Principles

A first step in matching Ontario's natural heritage areas to the IUCN classification system is to understand the definitions and principles on which the IUCN system is based. An area is eligible for classification as a protected area in the IUCN system if it:

- Falls within the overall definition of a protected area (see definition on page 19).
- Fulfills the selection criteria for a category defined in the IUCN guidelines.

The World Commission on Protected Areas recognizes the wider social and environmental importance of protected areas and that many areas also support the needs of human communities (Phillips, 1998a, b). The IUCN system discourages the narrow view that protected areas are single-purpose areas, and instead promotes a broader concept of varying degrees of conservation and development (E. Wiken, personal communication; Nelson and Eidsvik, 1990). In addition to strict conservation, scientific research, and wildlife habitat protection, many protected areas contribute a wide array of services including *"clean air, water, sources of fibre and protein, spiritual experiences, recreation, sources of knowledge, livelihoods, protecting unique cultures, and offering educational experiences"* (IUCN, 2005).

Agencies and organizations responsible for protected areas throughout the world recognize the diverse conditions under which natural and cultural values must be protected, and are responding with more flexible approaches to the care and perpetuation of these assets. The IUCN subscribes to the following principles to guide protected area category selection:

- *"For IUCN, only those areas where the main objective is conserving nature can be considered protected areas; this can include many areas with other goals as well, at the same level, but in the case of conflict, nature conservation will be the priority;*
- *Protected areas must prevent, or eliminate where necessary, any exploitation or management practice that will be harmful to the objectives of the designation;*
- *The choice of category should be based on the primary objective(s) stated for each protected area;*
- *The system is not intended to be hierarchical;*
- *All categories make a contribution to conservation but objectives must be chosen with respect to the particular situation; not all categories are equally useful in every situation;*
- *Any category can exist under any governance type and vice versa;*
- *A diversity of management approaches is desirable and should be encouraged, as it reflects the many ways in which communities around the world have expressed the universal value of the protected area concept;*
- *The category should be changed if assessment shows that the stated, long-term management objectives do not match those of the category assigned;*
- *However, the category is not a reflection of management effectiveness;*
- *Protected areas should usually aim to maintain or, ideally, increase the degree of naturalness of the ecosystem being protected;*
- *The definition and categories of protected areas should not be used as an excuse for dispossessing people of their land"* (Dudley, 2008:10).

The World Commission on Protected Areas promotes use of a range of protected area management categories to reflect different management objectives employed by jurisdictions, while stressing that all protected areas must have a strong biodiversity conservation purpose (Phillips, 1998a, b). The IUCN classification contains six categories in which the first category has two types:

- Category Ia: Strict Nature Reserve.
- Category Ib: Wilderness Area.
- Category II: National Park.
- Category III: Natural Monument or Feature.
- Category IV: Habitat/Species Management Area.
- Category V: Protected Landscape/Seascape.
- Category VI: Protected Area with Sustainable Use of Natural Resources (Dudley, 2008).

The categories are labels used by agencies and organizations to reflect the primary goals and objectives developed for each type of protected area. A category designation does not mean that an area is properly managed, or that the area will remain intact and undisturbed due to overriding factors in the surrounding landscapes/waterscapes, or that the conservation goals have been achieved.

The IUCN has developed a separate system for monitoring and assessing management effectiveness of these areas (Chape, 2004; Hockings et al., 2006). If uniformly adopted and consistently applied, however, the IUCN categories can assist in the evaluation of management effectiveness (Chape, 2004).

The IUCN classification system is designed to encourage:

- Provision of national and international standards for the collection, handling, and dissemination of data about protected areas.
- Classification of each protected area according to the objectives for which it is being managed, regardless of nomenclature.
- Storage of nationally and internationally comparable data by agencies and organizations such as the Canadian Council on Ecological Areas and Environment Canada which are developing the Canadian Areas Reporting and Tracking System (CARTS) (Turner, 2006), and the World Conservation Monitoring Centre, which maintains the *United Nations List of World Protected Areas*.
- The ability to provide consistent technical information to international protected area programs, including the UNESCO MAB Program, the World Heritage Convention, and the Ramsar Convention (WCPA-Australian and New Zealand Region, 2000:3).
- The development and implementation of legislation, regulations to manage human activities, clarification of governance, and the use of the IUCN categories in bioregional planning (Bishop et al., 2004).

For example, the IUCN categories are used in the July 2003 *African Convention on the Conservation of Nature and Natural Resources* (Dillon, 2004a; Phillips and Sheppard, 2004). The IUCN classification system is specifically mentioned and incorporated in legislation in Australia and Georgia and is being used as a basis in law in many other countries including Argentina, Belize, Brazil, Cambodia, Cuba, Guatemala, Hungary, Mexico, Philippines, Spain, Turkey, and Vietnam (Dillon, 2004a, b). Increasingly around the world, protected areas are being recognized for their role in achieving ecological sustainability and as an indicator of commitment to biological conservation (Chape, 2004). For example, in 2004 at the 7th Conference of the Parties of the *Convention on Biological Diversity*, delegates endorsed a measure of '*protected area coverage*' as an indicator worthy of testing in relation to commitments to significantly reduce biodiversity loss by 2010 (Secretariat of the Convention on Biological Diversity, 2004; in Chape, 2004).

In addition to these strengths, the IUCN system can be used in Ontario to:

- Provide a consistent overview of natural heritage area attributes and management objectives across the province.
- Establish monitoring indicators that can be accurately and consistently applied over time.
- Enhance 'state of the environment' reporting efforts so that the full array of protection initiatives are recognized, including those of individual landowners who would like to know that their efforts are making a difference and contributing to the bigger picture.
- Identify opportunities to enhance the status of natural heritage areas where management objectives are unclear, or where natural asset documentation is lacking.

Interpretation of the IUCN Protected Area Management Categories

In this section IUCN protected areas management categories are described in terms of their definition, objectives, distinguishing features, role in the landscape/waterscape, and issues for consideration (see descriptions in Boxes 3-1 to 3-7). This information is discussed and interpreted in an Ontario context where possible. These standards are recommended to help classify natural heritage areas and do not bind any agency or organization to a specific course of action.

Category Ia – Strict Nature Reserve

Definition

The Strict Nature Reserve is managed primarily for the protection of biological and geological diversity, scientific research, and monitoring (Box 3-1).

Interpretation of the Objectives in Box 3-1

Light Human Impact/Public Access: Preferably, public access should be excluded or closely regulated. Where public access is permitted, it should be

Box 3-1. CATEGORY Ia – Strict Nature Reserve.

DEFINITION

Strictly protected areas set aside to protect biodiversity and also possibly geological/geomorphological features, where human visitation, use, and impacts are strictly controlled and limited to ensure protection of the conservation values. Such protected areas can serve as indispensable reference areas for scientific research and monitoring.

PRIMARY OBJECTIVE

To conserve regionally, nationally, and globally outstanding ecosystems, species (occurrences and aggregations) and/or geodiversity features. These attributes will have been formed mostly or entirely by non-human forces and will be degraded or destroyed when subjected to all but very light human impact.

OTHER OBJECTIVES

- To preserve ecosystems, species, and geodiversity features in a state as undisturbed by recent human activity as possible.
- To secure examples of the natural environment for scientific studies, environmental monitoring, and education, including baseline areas from which all avoidable access is excluded.
- To minimize disturbance through careful planning and implementation of research and other approved activities.
- To conserve cultural and social values associated with nature.

DISTINGUISHING FEATURES

These areas should generally:

- Have a largely complete set of expected native species in ecologically significant densities or be capable of returning them to such densities through natural processes or time-limited intervention.
- Be free of significant direct intervention by modern humans that would compromise the conservation objectives established for the area, which usually implies limiting access by people and excluding settlement.
- Not require substantial and ongoing intervention to achieve its conservation objectives.
- Be surrounded, when feasible, by land uses that contribute to the area's specified conservation objectives.
- Be suitable as a baseline monitoring site for monitoring the relative impact of human activities.
- Be managed for relatively low visitation by humans.
- Be capable of being managed to ensure minimal disturbance (especially relevant to marine environments).

The area could be of religious or spiritual significance (such as a sacred natural site) so long as biodiversity conservation is identified as a primary objective. In this case the area might contain sites that could be visited by a limited number of people engaged in faith activities consistent with area's management objectives.

ROLE IN THE LANDSCAPE/SEASCAPE

These areas contribute in a significant way to conservation through:

- Protecting some of Earth's richness that will not survive outside of such strictly protected settings.
- Providing reference points to allow baseline and long-term measurement and monitoring of the impact of human-induced change outside such areas (e.g., pollution).
- Providing areas where ecosystems can be studied in as pristine an environment as possible.
- Protecting additional ecosystem services.
- Protecting natural sites that are also of religious and cultural significance.

OTHER CONSIDERATIONS

- The objectives of category Ia are generally aimed at a whole ecosystem and its ecosystem processes.
- These areas should be largely self-sustaining.
- Restoration should be through natural processes or time-limited interventions. However, it is recognized that human actions have regional and global reach (e.g., climate change, pollution, and invasive species), and in an increasingly modified ecology, it may become increasingly difficult to maintain pristine areas through non-intervention.

Source: Dudley (2008:13)

Image by M. Wester

limited for the purposes of research, recreation and education, should have no impacts on the ecosystems, habitats, or species of the area, and should be subject to strict controls provided in a management plan (WCPA-Australia and New Zealand Region, 2000:16). Some access may be acceptable in Ontario Nature Reserve Provincial Parks because many sites are resilient due to the predominance of rock. In addition, many Nature Reserves are located in remote areas and receive very low levels of use.

Ecotourism may be acceptable where it is included as part of a research or education program prescribed under a formally adopted management plan. It must be carefully managed and controlled. In Ontario, access facilities such as the walking trails and the viewing platform at Ouimet Canyon Provincial Nature Reserve Park help channel people and manage use, and thereby enhance protection (MNR, 1975a). In the Kinghurst Forest Nature Reserve, an important objective used by Ontario Nature is to develop and implement a plan to address visitor access (i.e., trails, parking, and signage) and natural heritage interpretation (Richter et al., 2003:24)

Minimize Disturbance: To achieve this objective, a management plan or formal statement of management intent is required. Any activity that causes permanent change in the intrinsic character of the natural system is unacceptable. Scientific studies, environmental monitoring, and education may be acceptable as prescribed under the management plan, provided their potential impact is either minimal, as in observational scientific research, or temporary, as in some types of manipulative research. For example, the National Capital Commission's *Greenbelt Master Plan* restricts human activities in Core Natural Areas to nature interpretation and ecological research, and recreational activities that do not disrupt the natural setting, natural processes, or fragment habitat (National Capital Commission, 1996:37). And at Kinghurst, Ontario Nature uses a trail system designed to:

- Allow visitors to experience the various natural areas without leaving designated trails.
- Leave significant areas of interior deciduous forest free from trails.
- Use only pre-existing trails.
- And ensure the safety of visitors by avoiding hazardous areas (Richter et al. 2003:24).

Interpretation of Distinguishing Features in Box 3-1

Human Intervention: A degree of human intervention in support of efforts to restore or maintain habitats, species, and ecosystems is deemed acceptable provided it is not extensive or required on an on-going basis (this would more likely be a category IV area) (Dudley, 2008). Although active intervention by management agencies/organizations is not included in the management prescription, the WCPA-Australia and New Zealand Region (2000:16) states that where necessary, intervention in Category Ia areas may include protection measures such as the control of weeds and feral animals. In Ontario's O'Donnell Point Provincial Nature Reserve Park, permitted activities can include:

- Fish habitat management projects.
- Resolution of human/wildlife conflicts.
- Re-establishment of missing native species.
- Control of invasive and non-native species.
- Rehabilitation of vegetation communities.
- Prescribed fire to achieve ecological or hazard reduction objectives (MNR, 2007a:7-8).

In National Capital Commission Natural Core Areas, existing agriculture, production forestry, residential or other occupied spaces are phased out, and the expansion of urban infrastructure is prohibited except in cases where compensating mechanisms such as road closure are used to reduce fragmentation (National Capital Commission, 1996:38).

In practice, many of Ontario's southern ecosystems require some degree of human intervention to restore and/or maintain wildlife habitat as a consequence of the long history of interaction between people and the landscapes and waterscapes. For example, Peter's Woods Provincial Nature Reserve Park is located on the north-facing slope of the Oak Ridges Moraine. Deciduous forests of Sugar Maple (*Acer saccharum*), Beech (*Fagus grandifolia*), Red Oak (*Quercus rubra*) and deciduous-evergreen forest containing Hemlock (*Tsuga canadensis*) and White Pine (*Pinus strobus*) dominate the slopes and well-drained uplands. Poorly drained wetlands support forests of White Cedar (*Thuja occidentalis*) and local concentrations of Red Ash (*Fraxinus pennsylvanica*), White Birch (*Betula papyrifera*), and other species. The Nature Reserve also includes land that has been used for agriculture and is currently being restored to native prairie and savannah ecosystems. Restoration includes the planting of prairie and savannah species and the removal of Scots Pine (*Pinus sylvestris*) that shade out tallgrass prairie plants and other native communities (MNR, 2009a). In addition, re-establishment of native prairie plant species can be negatively impacted by over-browsing wildlife. Therefore, Ontario Parks periodically assesses the impacts of White-tailed Deer (*Odocoileus virginianus*) browsing on vegetation in the Nature Reserve to determine if management action is needed. Ongoing maintenance of the tallgrass prairie will require prescribed burning under the auspices of the management plan, which is subject to the requirements of the *Provincial Parks and Conservation Reserves Act*, the *Environmental Assessment Act*, the *Environmental Bill of Rights Act*, the *Endangered Species Act*, and other pertinent legislation.

Conservation of Biodiversity: Manipulation constitutes active management that favours certain parts and processes of the ecosystem (i.e., species and habitats) over others. National Capital Commission Core Natural Areas are permitted to evolve with minimal intervention, except in cases where management is required for reasons of public safety (National Capital Commission, 1996:38). On the other hand, landscape management for visual effect, such as removal of vegetation for panoramic views, is discouraged (National Capital Commission, 1996:38). Significant cultural built features are conserved in a way that maintains a subordinate presence within a natural setting and those with lesser significance are obscured or overtaken by natural processes (National Capital Commission, 1996:38).

The extent of manipulation adopted, rather than the mere fact that it occurs, should be used to differentiate Category Ia from Category IV areas – areas managed for wildlife conservation through active intervention (WCPA-Australia and New Zealand Region, 2000:16). Given the frequency and intensity of active management programs that may be needed to maintain some Nature Reserve Class Parks, these areas may qualify for classification as IUCN category IV (not Ia) protected areas.

Interpretation of the Role in the Landscape/Seascape in Box 3-1

Role: Practitioners should refer to the management objectives in the legislation, management plan, or other formal statement of management intent to determine whether an area is large enough to fulfill its role in the landscape. For example, natural functioning ecosystems provide a variety of primary life-support services like clean water (Costanza et al., 1997; Elliott et al., 2002; EUROPARC-España, 2006:14-15; Gray et al., 2003; Kennedy and Wilson, 2009; Wilson, 2008).

Interpretation of Other Considerations in Box 3-1

Self-Sustaining: The size required will vary depending on whether the reserve aims to protect entire ecosystems or a single species. In theory, a Category Ia protected area will be large enough to ensure that minimal intervention is required to maintain ecosystems. In some instances, therefore, Category Ia areas will be large. In other cases, such as habitat for colonial birds or rare plant species for example, a relatively small area may be needed to achieve the desired level of protection. In all cases, the impact of adjacent and adjoining land uses should be evaluated in assessing viability (WCPA-Australia and New Zealand Region, 2000:16). In Spain, examples of Category Ia areas include caves, peat bogs, mountain lakes, and head-water ecosystems (EUROPARC-España, 2006:17). In Ontario, the average size of a Provincial Nature Reserve Park, an example of a Category Ia protected area, is 1,007.2 ha (they range in size from 1.0 to 8,378 ha) (L. McCubbin, personal communication).

Box 3-2 continued.

Box 3-2. CATEGORY Ib – Wilderness Area.

DEFINITION

Usually large unmodified or slightly modified areas, retaining their natural character and influence, without permanent or significant human habitation, which are protected and managed so as to preserve their natural condition.

PRIMARY OBJECTIVE

- To protect the long-term ecological integrity of natural areas that are undisturbed by significant human activity, free of modern infrastructure and where natural forces and processes predominate, so that current and future generations have the opportunity to experience such areas.

OTHER OBJECTIVES

- To provide for public access at levels and a type that will maintain the wilderness qualities of the area for present and future generations.
- To enable indigenous communities to maintain their traditional wilderness-based lifestyle and customs, living at low density and using the available resources in ways compatible with the conservation objectives.
- To protect the relevant cultural and spiritual values and non-material benefits to indigenous or non-indigenous populations, such as solitude, respect for sacred sites, respect for ancestors, etc.
- To allow for low-impact, minimally invasive educational and scientific research activities when such activities cannot be conducted outside the wilderness area.

DISTINGUISHING FEATURES

These areas should generally:

- Be free of modern infrastructure, development and industrial extractive activity, including but not limited to roads, pipelines, power lines, cell phone towers, oil and gas platforms, offshore liquefied natural gas terminals, other permanent structures, mining, hydropower development, oil and gas extraction, agriculture including intensive livestock grazing, commercial fishing, low-flying aircraft, etc., preferably with highly restricted or no motorized access.
- Be characterized by a high degree of intactness whereby it contains a large percentage of the original extent of the ecosystem, complete or near-complete native faunal and floral assemblages, retaining intact predator-prey systems, and including large mammals.
- Be of sufficient size to protect biodiversity, to maintain ecological processes and ecosystem services, to maintain ecological refugia, to buffer against the impacts of climate change, and to maintain evolutionary processes.
- Offer outstanding opportunities for solitude, enjoyed once the area has been reached, by simple, quiet and non-intrusive means of travel (i.e., non-motorized or highly regulated motorized access where strictly necessary and consistent with the biological objectives listed above).
- Be free of inappropriate or excessive human use or presence, which will decrease wilderness values and ultimately prevent an area from meeting the biological and cultural criteria listed above. However, human presence should not be the determining factor in deciding whether to establish a category Ib area. The key objectives are biological intactness and the absence of permanent infrastructure, extractive industries, agriculture, motorized use, and other indicators of modern or lasting technology.

In addition, Category Ib can include disturbed areas that are capable of being restored to a wilderness state, and smaller areas that might be expanded or could play an important role in a larger wilderness protection strategy as part of a network of protected areas that includes wilderness. If the primary management objective listed above is met, the management focus of the wilderness area may shift to other objectives such as protecting cultural values or recreation, but only so long as the primary objective continues to be secure.

Continued on page 37.

Box 3-2 continued.

Box 3-2. CATEGORY Ib – Wilderness Area.

ROLE IN THE LANDSCAPE/SEASCAPE

In many ways wilderness areas play similar roles to category II national parks in protecting large, functioning ecosystems (or at least where many aspects of an ecosystem can flourish). Specific roles include:

- Protecting large mainly untouched areas where ecosystem processes, including evolution, can continue unhindered by humans, including development of mass tourism.
- Protecting compatible ecosystem services.
- Protecting particular species and ecological communities that require relatively large areas of undisturbed habitat.
- Providing a pool of such species to help populate sustainably-managed areas surrounding the protected area.
- Providing space for a limited number of visitors to experience wilderness.
- Providing opportunities for responses to climate change including biome shift.

OTHER CONSIDERATIONS

- Wilderness areas are larger than Category Ia protected areas.
- The aim of Category Ib areas is to protect ecosystems.
- In Category Ib protected areas, visitation is confined to people with the skill and equipment to survive unaided.
- Category Ib protected areas should be in as natural a state as possible and would only contain cultural landscapes if the intention were to restore these back to near-natural conditions.
- Although wilderness areas sometimes include limited traditional use by indigenous people, this is incidental to management aims rather than an intrinsic part of these aims.

Source: Dudley (2008:14-15)

Category Ib – Wilderness Area

Areas in this category are managed mainly for wilderness protection (Box 3-2).

Interpretation of the Definition in Box 3-2

Size: By definition, Category Ib areas are large with high ecological integrity characterized by no or insignificant levels of human habitation. For example, in Ontario the recommended average size of a Provincial Wilderness Park is 100,000 ha, and no less than 50,000 ha, while Wilderness Zones in various types of Provincial Parks can range from 2,000 to 50,000 ha (MNR, 1992:27).

Modified: In Ontario, many ecosystems may be modified, but may still retain their wilderness character. The long-term objective is important in assigning areas to this category. In areas where logging no longer occurs, for example, the impacts of historical forest harvesting may range from slightly modified (and still detectable or undetectable) to unmodified. Therefore, even though the area has been modified it has significant potential as future wilderness.

Habitation: The reference *"without permanent or significant habitation"* implies that Aboriginal people living a subsistence lifestyle or using resources for ceremonial purposes is acceptable in Category Ib areas. For example, the continuance of traditional Aboriginal trapping in Quetico Provincial Wilderness Park (located in northwestern Ontario) by members of the Lac La Croix First Nation is assured by Treaty (MNR and Lac La Croix First Nation, 1995:11). On the other hand, public access roads and farming are not acceptable in Category Ib areas (WCPA-Australia and New Zealand Region, 2000:17). In Quetico Park, six small Access Zones (about 0.05% of the total park area) provide parking and access to the park interior. The rest of the park (99.5%) is protected as wilderness (MNR and Lac La Croix First Nation, 1995:6).

Image by P.A. Gray

Interpretation of the Objectives in Box 3-2

Public Access: A legally enforceable mechanism for the restriction and management of public access should be available for use in Category Ib areas (WCPA-Australia and New Zealand Region, 2000:17), and should be applied in accordance with established treaties where applicable. The remote nature of many wilderness areas serves to limit public access, but access also must be restricted to ensure maintenance of wilderness characteristics and associated qualities or values. For example, visitor quotas are used by Ontario Parks to control access to Killarney (MNR, 1985a:11) and Quetico (MNR and Lac La Croix First Nation, 1995:14) Wilderness Parks.

Indigenous Lifestyle: Aboriginal people living a subsistence lifestyle or using resources in accordance with Treaty and Aboriginal rights, as protected in the Canadian Constitution (Section 35), are acceptable human activities in Category Ib areas. Where possible, such activities should be directed in ways that are compatible with wilderness values and have no significant impact on the resources of the area. For example, the *Governing Principles of the Lac La Croix Agreement of Co-existence* outlined below provides the basis of a formal government-to-government relationship between Ontario and the Lac La Croix First Nation:

1) *"All governments in Ontario, provincial and First Nations alike, have a shared responsibility to preserve, protect and enhance lands and natural resources for the benefit of future generations.*

2) *The creation of Quetico Provincial Park has partially severed the people of Lac La Croix First Nation from their sacrosanct relationship with their ancestral homeland, the social health of Mind, Body and Spirit which is attributable to their relationship with the land and the economic benefits derived from the land area.*

3) *The Parties agree that in light of indignities suffered by the citizens of the First Nation, their displacement from their traditional homeland and the loss of significant economic opportunities due to the creation of Quetico Provincial Park, it is vital to foster and promote a co-operative government-to-government relationship of co-existence which recognizes the First Nation as a co-decision-maker in accordance with the provisions of this Agreement in the Quetico Area while providing significant cultural, social and economic opportunities to the First Nation.*

4) *The First Nation must be an active and full participant in the future planning, development and management of the Quetico Area in accordance with the provisions of this Agreement and share in the economic benefits derived from that Area.*

5) *The maintenance of the wilderness values of Quetico Provincial Park is of paramount importance to the people of Ontario and is consistent with sustaining the cultural and social integrity of both the First Nation and the Park.*

6) *The Parties agree that courses of action must be developed and implemented to meet the First Nation's economic needs and aspirations while consistent with the wilderness values of Quetico Provincial Park.*

7) *The Parties recognize that the lands and resources of Quetico Provincial Park have always been relied upon to fulfill many of the economic needs of the First Nation but that Quetico Provincial Park cannot be relied upon to fulfill all of the economic development needs of the First Nation.*

8) *The parties recognize that improved power boat and aircraft access by the First Nation, in the short term, to Quetico Provincial Park is critical to the First Nation to realize its economic development needs and viability.*

9) *The Parties agree, that in keeping with the principles outlined above, to work towards the elimination of powerboat and aircraft access to Quetico Provincial Park"* (MNR and Lac La Croix First Nation, 1995:26).

Interpretation of the Distinguishing Features in Box 3-2

Modern Infrastructure: The use of technologies that impact on the wilderness values of an area (e.g., the noise and/or physical impacts resulting from the use of all terrain vehicles or the installation of trailer/caravan type campsites) are generally not acceptable. In addition, permanent habitation or activities that consume the resources of an area (e.g., settlements and villages, commercial fishing operations, and recreational hunting) are normally not appropriate uses in Category Ib protected areas (Dudley, 2008:14; WCPA-Australia and New Zealand Region, 2000:17). In Ontario, some Category Ib areas (e.g., Quetico and Killarney Provincial Wilderness Parks) provide visitor amenities in a small proportion of the area and on the periphery of the area to minimize the impact on wilderness areas. In the 2,200 ha Wilderness Zone in Halfway Lake Provincial Park north of Sudbury, development is limited to an absolute minimum required to facilitate interior hiking and canoeing such as trails, campsites, portages and necessary route and campsite signs (MNR, 2002a:9).

Ecological Integrity: A high degree of intactness implies that ecosystems are self-sustaining with normal composition, structure, and function for the Ecoregion, Ecodistrict, or other ecosystems (see Fig. 1-1). The Halfway Lake Provincial Park Wilderness Zone serves to protect the *"ecological integrity of outstanding natural landscapes, as well as provide recreational opportunities and educational benefits for park visitors"* (MNR, 2002a:9).

Values: It is not absolutely essential that features included in wilderness areas be nationally, provincially, or regionally significant since the absence of geographic importance does not alter the existence of wilderness values. Where significant attributes are combined with relatively large areas, wilderness areas may demonstrate Category II protected area attributes. The principal differences between IUCN Categories Ib and II are the relative intensity and type of recreational use permitted and the requirement for a wilderness area to be managed specifically for wilderness protection (WCPA-Australia and New Zealand Region, 2000:18). For example, medium to high priority recreational objectives in Provincial Natural Environment Parks (IUCN Category II) include day use opportunities (e.g., picnicking and swimming) and facility-based camping opportunities (e.g., campgrounds with vehicle access), while these priorities are low or non-existent in Provincial Wilderness Parks (MNR, 1992:26). It is important to note that Wilderness Zones can be established in Natural Environment Parks and Waterway Parks as well (MNR, 1992:38).

Solitude and Non-motorized Travel: The means of travel should be controlled under the provisions of a management plan or statement of management intent. Any means of travel should have minimal impact on the natural values and other uses of the area. Aircraft are normally restricted to landing sites in 'access zones'. In Ontario's Wilderness Class Parks, there are a few exceptions to these strict provisions. In Quetico Provincial Park, Aboriginal guides do use motor boats (MNR and Lac La Croix First Nation, 1995:13) and in Polar Bear Provincial Park, guide-operated motor canoes are permitted in the Sutton River and Winisk River Access Zones (MNR, 1980a:12).

Interpretation of the Role in the Landscape/Seascape in Box 3-2

Category Ib wilderness areas have been formally established in Ontario by the federal and provincial governments under the provisions of a relevant Act (e.g., Ontario's *Provincial Parks and Conservation Reserves Act*). Both agencies have established planning and management policies and guidelines.

Category II – National Park

Category II protected areas are managed primarily for ecosystem protection which provide a foundation for environmentally and culturally compatible activities (Box 3-3). Most of Ontario's Provincial Parks and Conservation Reserves fall into this IUCN category.

Interpretation of the Definition in Box 3-3

Exploitation or Occupation: Human activities within a Category II protected area should be compatible with the innate cultural attributes of the area. These cultural

Box 3-3 continued.

Box 3-3. CATEGORY II – National Park.

DEFINITION

Category II protected areas are large natural or near natural areas set aside to protect large-scale ecological processes, along with the complement of species and ecosystems characteristic of the area, which also provide a foundation for environmentally and culturally compatible spiritual, scientific, educational, recreational, and visitor opportunities.

PRIMARY OBJECTIVE

- To protect natural biodiversity along with its underlying ecological structure and supporting environmental processes, and to promote education and recreation.

Note that the name "National Park" is not exclusively linked to Category II. Throughout the world, places called National Parks exist in all the categories (and there are even some National Parks that are not protected at all). The name is used here because it is descriptive of Category II protected areas in many countries. The fact that an area is called a National Park is independent of its management approach.

OTHER OBJECTIVES

- To manage the area in order to perpetuate, in as natural a state as possible, representative examples of physiographic regions, biotic communities, genetic resources, and unimpaired natural processes.
- To maintain viable and ecologically functional populations and assemblages of native species at densities sufficient to conserve ecosystem integrity and resilience in the long term.
- To contribute in particular to conservation of wide-ranging species, regional ecological processes, and migration routes.
- To manage visitor use for inspirational, educational, cultural, and recreational purposes at a level that will not cause significant biological or ecological degradation to the natural resources.
- To take into account the needs of indigenous people and local communities, including subsistence resource use, in so far as these will not adversely affect the primary management objective.
- To contribute to local economies through tourism.

DISTINGUISHING FEATURES

- Category II protected areas are typically large and conserve a functioning ecosystem, although to be able to achieve this, the protected area may need to be complemented by sympathetic management in surrounding areas.
- The area should contain representative examples of major natural regions, and biological and environmental features or scenery, where native plant and animal species, habitats, and geodiversity sites are of special spiritual, scientific, educational, recreational, or tourist significance.
- The area should be of sufficient size and ecological quality to maintain ecological functions and processes that will allow the native species and communities to persist for the long term with minimal management intervention.
- The composition, structure, and function of biodiversity should be to a great degree in a natural state or have the potential to be restored to such a state, with relatively low risk of successful invasions by non-native species.

Continued on page 41.

Box 3-3 continued.

Box 3-3. CATEGORY II – National Park.

ROLE IN THE LANDSCAPE/SEASCAPE

Category II provides large-scale conservation opportunities where natural ecological processes can continue in perpetuity, allowing space for continuing evolution. They are often key stepping-stones for designing and developing large-scale biological corridors or other connectivity conservation initiatives required for those species (wide-ranging and/or migratory) that cannot be conserved entirely within a single protected area. Their key roles are therefore:

- Protecting larger-scale ecological processes that will be missed by smaller protected areas or in cultural landscapes.
- Protecting compatible ecosystem services.
- Protecting particular species and communities that require relatively large areas of undisturbed habitat.
- Providing a pool of such species to help populate sustainably managed areas surrounding the protected area.
- To be integrated with surrounding land or water uses to contribute to large-scale conservation plans.
- To inform and excite visitors about the need for and potential of conservation programmes.
- To support compatible economic development, mostly through recreation and tourism, that can contribute to local and national economies and in particular to local communities.

Category II areas should be more strictly protected where ecological functions and native species composition are relatively intact. Surrounding landscapes can have varying degrees of consumptive or non-consumptive uses but should ideally serve as buffers to the protected area.

OTHER CONSIDERATIONS

Category II protected areas:

- Usually combine ecosystem protection with recreation, subject to zoning, on a scale not suitable for Category Ia protected areas.
- Aim to protect functioning ecosystems.
- Include (or plan to include) use by visitors, including supporting infrastructure.
- Often have core zones where visitor numbers are strictly controlled.
- Aim to protect ecological integrity at the ecosystem scale.
- Are essentially natural systems or in the process of being restored to natural systems.
- Will not generally permit resource use except for subsistence or minor recreational purposes.
- Seek to minimize human activity in order to allow for as natural a state as possible.

Source: Dudley (2008:16-17).

attributes may derive from a variety of inhabitants over time. For example, Aboriginal and early European sites can occur contiguously. In addition, Aboriginal subsistence and ceremonial resource use activities in Category II areas are appropriate in situations where they are conducted in accordance with the management plan or other equivalent statement of management intent (WCPA-Australia and New Zealand Region, 2000:19), or in accordance with established treaties.

Interpretation of the Objectives in Box 3-3

Ecological Integrity: The concept of ecological integrity implies that the natural features of ecosystems are intact and the processes required to sustain ecosystems are maintained. Therefore, maximum integrity results when human activities that alter the natural flow of energy and contribute to the disorganization of the ecosystem are excluded (EUROPARC-España, 2006:13). Ecological integrity is explicitly recognized as a goal by Parks Canada (1994:33) and Ontario Parks (Statutes of Ontario, 2006). For example, in the *Provincial Parks and Conservation Reserves Act*, ecological integrity refers to *"a condition in which biotic and abiotic components of ecosystems and the composition and abundance of native species and biological communities are characteristic of their natural regions and rates of change and ecosystem processes are unimpaired"* (Statutes of Ontario, 2006).

Manage Visitor Use: Manage visitor use to prevent significant biological or ecological degradation. For example, use of Halfway Lake Provincial Park is managed through the application of rules and regulations developed for each type of zone in the park. Campgrounds, boat launches, the trailer storage areas, the comfort station, the park store, the interpretative resource centre, the park office, and other facilities are restricted to Development Zones and Access Zones, which encompass about 2% of the park (MNR, 2002a:5-10). Natural Environment Zones include aesthetic landscapes in which minimal development is permitted to support low-intensity recreational opportunities. Wilderness Zones and Nature Reserve Zones are strictly controlled to protect the ecological integrity of these areas (MNR, 2002a:7-9).

Foundation for Compatible Activities: The purposes of the area should be defined in a management plan or equivalent document. Any activity that is deleterious or contrary to the management intent of the area should be excluded. In practice, minor areas of exploitation or occupation may have been present before reservation of an area, either within a protected area or adjoining to it. Activities should not inflict deleterious effect on the entire area (e.g., pollution). Examples of deleterious activities include mining, logging, grazing, and inappropriate recreational activities. Policies should be in place to phase-out such activities within the protected area and rehabilitation of such areas should be addressed in the management plan (WCPA-Australia and New Zealand Region, 2000:20). For example, the Halfway Lake Park Management Plan (MNR, 2002a:26) requires Ontario Parks to prepare an *Aggregate Resources Rehabilitation Plan* to rehabilitate an aggregate (borrow) pit.

Interpretation of the Distinguishing Features in Box 3-3

Perpetuate Representative Examples:
Representation is an important criterion of Category II protected areas (EUROPARC-España, 2006:15). In order to maintain biotic communities and ecological processes, activities such as fire management (in Ontario this refers to prescribed burning, prescribed natural fire, or managed fire), feral animal control, and weed control may be undertaken (WCPA-Australia and New Zealand Region, 2000:19). In Presqu'ile Provincial Park for example, chemical fertilizers, pesticides, and suppressants are not allowed for vegetation management except:

- Insect and disease control and fire suppression under specific conditions described in the plan
- Eradication of non-native species where it has been demonstrated that other methods with less residual impact on the Park's environment are not feasible.
- Control of Poison Ivy (*Toxicodendron radicans*) in Development Zones (MNR, 2000a:21).

As measures of ecological integrity are developed and used, these indicators of condition/health will assist agency and organization staff to evaluate the effectiveness of the area management plan.

Manage Visitor Use: The purposes of the area should be defined in a management plan or some equivalent document (WCPA-Australia and New Zealand Region, 2000:20). For example, Parks Canada (1994:36) uses a variety of direct strategies (e.g., zoning that controls use intensity and restricts activities) and indirect strategies (e.g., facility design, information dissemination, and cost recovery mechanisms) to mange public use. In Point Pelee National Park,

Image by P.A. Gray

Parks Canada controls vehicular access and uses a combination of designated trails and an in-park shuttle service to manage the movement of people.

Interpretation of the Role in the Landscape/Seascape in Box 3-3

Protection: Management programs for Category II protected areas may include emphasis on recreation. Given that Category Ib and Category II protected areas demonstrate similar physical and biological characteristics, permitted types of recreation also may serve as a delimiting feature between Category Ib and Category II sites (WCPA – Australia and New Zealand Region, 2000:19).

Size: Generally, Category II protected areas will be relatively large in order to conserve representative samples of physiographic region(s) in which they are located (Dudley, 2008:16-17). However, their size may vary widely in relation to:

- The area that is required to maintain ecological integrity, which is also determined by surrounding tenure and land use.
- How the concept of an 'entire ecosystem' is interpreted, which will depend on the ecosystem classification scheme and the management intent for the area. A Category II protected area is intended to be extensive rather than focused on discrete natural features. This may serve to distinguish between Category II and Category III protected areas where Category III areas are characterized by discrete biophysical entities such as waterfalls and caves (WCPA-Australia and New Zealand Region, 2000:20-21).

Interpretation of the Other Considerations in Box 3-3

Needs of Indigenous People: Where agreed in a management plan, or statement of management intent, or established through Treaty, Aboriginal communities may choose to access resources for ceremonial purposes and/or subsistence use. This use should have no significant long-term detrimental impact on the resources of an area and should be sustainable. In Ontario, a number of Provincial Parks address the needs of Aboriginal people. For example, Rainbow Falls Provincial Park, a Recreation Class Park located on the north shore of Lake Superior about 200 km east of Thunder Bay, provides for the access of status Indians having Aboriginal and Treaty rights to natural assets in the park. Specifically with respect to wildlife and fisheries, *"status Indians having Aboriginal and Treaty rights to carry out traditional natural resource harvesting activities shall be permitted to carry on these activities in accordance with the terms of their treaty within their treaty areas"* (MNR, 2004a:10). And in Halfway Lake Provincial Park, *"status Indians exercising treaty rights are permitted to continue commercial fur harvesting, subject to applicable legislation and regulation"* (MNR, 2002a:13).

Altered Ecosystems: Altered ecosystems may be included in a Category II protected area provided their existence does not conflict with the principal management objectives of the rest of the area. Examples of altered ecosystems which may be acceptable, although not necessarily desirable, for inclusion in a Category II protected area include:

- Fire control sites in high-risk areas (e.g., adjacent to urban boundaries).
- Vegetation rehabilitation areas.
- Weed contaminated areas that are subject to control measures (WCPA-Australia and New Zealand Region, 2000:20).

In Ontario, there is need for active and ongoing restoration and management of populations, habitats, and ecosystems in some areas. In southern Ontario, a number of Provincial Parks require ongoing management to maintain a prescribed ecological condition. For example, conifer plantations are being removed and oak savannah ecosystems are being reintroduced into Pinery Provincial Park (MNR, 1986a). Given the scope of the restoration and maintenance programs, Pinery may qualify as an IUCN Category IV protected area. In Presqu'ile Provincial Park, where active management is required for the recovery of species at risk, it will be completed under the auspices of zone resource management plans, and in accordance with national and provincial recovery plans (e.g., Recovery of Nationally Endangered Wildlife – RENEW). In Presqu'ile, planted conifers are being removed from Nature Reserve Zone 1 and Natural Environment Zone 1, and will be replaced with native species and habitats (MNR, 2000a:20).

Image by P.A. Gray

Category III – Natural Monument or Feature

Category III protected areas are managed mainly for the conservation of specific natural features and visitor use (Box 3-4).

Interpretation of the Definition in Box 3-4

Natural Features: An area of land and/or water containing a particular natural feature of public interest is a characteristic of Category III protected areas (Dudley 2008:17-18). Often these are unique, rare, representative, aesthetic, or cultural in nature (EUROPARC-España, 2006:15). Cultural features associated with natural features, or cultural features that demonstrate a particular interaction with a natural feature, also may be included.

The term 'monument' is used more extensively in the international context and is less relevant to Ontario where it is more often associated with human-made features in urban landscapes that are protected as national historic sites.

Interpretation of the Objectives in Box 3-4

Protection: These areas protect or preserve in perpetuity specific outstanding natural features because of their natural significance, unique or representational quality, and/or spiritual values. A secured tenure in conjunction with long-term application of a management plan or equivalent statement of management intent is required. Long-term protection should be provided for all cultural, geological, or biological features encompassed on the site (WCPA-Australia and New Zealand Region, 2000:22). For example the Warsaw Caves Conservation Area east of Peterborough is protected and strictly managed by the Otonabee Region Conservation Authority. The Warsaw Caves are comprised of seven caverns (some are connected) that range from 40 to 91m long and are excellent for beginning spelunkers (Otonabee Region Conservation Authority, 2008).

Interpretation of the Distinguishing Features in Box 3-4

Cultural Elements: The presentation of cultural values or features, either on their own or in association with the natural surroundings may contribute to an area's placement in Category III rather than Category I (WCPA-Australia and New Zealand Region, 2000:22). Ontario's Cultural Heritage Class Parks or features located in Historic Zones may fit this category. For example, in a forest northeast of Peterborough is the largest known concentration of Aboriginal rock carvings in Canada. Carved into the white marble rock face hundreds of years ago, the 900 petroglyphs depict turtles, snakes, birds, humans and other images important in Algonkian culture. Petroglyphs Provincial Park is a 1,555 ha Cultural Class Park that encompasses a variety of natural assets, including habitat for fish and wildlife species and the petroglyphs sites (MNR, 1977:39). The petroglyphs are protected in a 143 ha Historical Zone. Facilities have been developed to manage the flow of visitors and protect the petroglyphs.

Interpretation of the Role in the Landscape/Seascape in Box 3-4

Deliver Benefits: Provided a permitted activity excludes industrial activities and does not damage the features or processes within the protected area, and activities are in keeping with the aesthetic and cultural values of the area, it may be interpreted as 'consistent' and permitted. In this case, a resident population could include people who live away from the site but traditionally use it for purposes such as ceremonies, education, and other suitable activities (WCPA-Australia and New Zealand Region, 2000:23).

Box 3-4. CATEGORY III – Natural Monument or Feature.

DEFINITION

- Category III protected areas are set aside to protect a specific natural monument, which can be a landform, sea mount, submarine cavern, geological feature such as a cave or even a living feature such as an ancient grove. They are generally quite small protected areas and often have high visitor value.

PRIMARY OBJECTIVE

- To protect specific outstanding natural features and their associated biodiversity and habitats.

OTHER OBJECTIVES

- To provide biodiversity protection in landscapes or seascapes that have otherwise undergone major changes (noting that protection of specific cultural sites can often provide havens of natural or semi-natural habitat in areas that have otherwise undergone substantial modification – e.g., ancient trees around temples).
- To protect specific natural sites with spiritual and/or cultural values where these also have biodiversity values.
- To conserve traditional spiritual and cultural values of the site.

DISTINGUISHING FEATURES

Category III protected areas are usually relatively small sites that focus on one or more prominent natural features and the associated ecology, rather than on a broader ecosystem. They are managed in much the same way as category II protected area. The term 'natural' as used here can refer to wholly natural features (the commonest use) and sometimes features that have been influenced by humans. In the latter case these sites should always have important associated biodiversity attributes, which should be reflected as a priority in their management objectives if they are to be classified as a protected area rather than an historical or spiritual site.

Category III protected areas could include:

- Natural Geological and Geomorphological Features: Such as waterfalls, cliffs, craters, caves, fossil beds, sand dunes, rock forms, valleys, and marine features such as sea mounts or coral formations.
- Culturally-influenced Natural Features: Such as cave dwellings and ancient tracks.
- Natural-cultural Sites: Such as the many forms of sacred natural sites (sacred groves, springs, waterfalls, mountains, sea coves, etc.) of importance to one or more faith groups.
- Cultural Sites with Associated Ecology: Where protection of a cultural site also protects significant and important biodiversity, such as archaeological/historical sites that are inextricably linked to a natural area.

Nature conservation attributes of Category III protected areas fall into two main types:

- Biodiversity that is uniquely related to the ecological conditions associated with the natural feature – such as the spray zones of a waterfall, the ecological conditions in a cave, or plant species confined to a cliff.
- Biodiversity that is surviving because the presence of cultural or spiritual values at the site have maintained a natural or semi-natural habitat in what is otherwise a modified ecosystem – such as some sacred natural sites or historical sites that have associated natural areas. In these cases the key criteria for inclusion as a protected area will be (i) the value of the site as a contribution to broad-scale conservation and (ii) prioritization of biodiversity conservation within management plans.

Category III can be used to provide a natural management approach for many sacred natural sites such as sacred groves. Although sacred natural sites are found in all categories and can benefit from a wide range of management approaches, they may be particularly suited to management as natural monuments.

Continued on page 46

Box 3-4 continued.

Box 3-4. CATEGORY III – Natural Monument or Feature.

ROLE IN THE LANDSCAPE/SEASCAPE

Category III is really intended to protect the unusual rather than to provide logical components in a broad-scale approach to conservation, so that their role in landscape or ecoregional strategies may sometimes be opportunistic rather than planned. In other cases (e.g., cave systems) such sites may play a key ecological role identified within wider conservation plans.

Important natural monuments can sometimes provide an incentive for protection and an opportunity for environmental/cultural education even in areas where other forms of protection are resisted due to population or development pressure, such as important sacred or cultural sites. In these cases category III protected areas can preserve samples of natural habitat in otherwise cultural or fragmented landscapes.

OTHER CONSIDERATIONS

- Because it is aimed at protecting a particular feature, Category III is perhaps the most heavily influenced of all categories by human perceptions of what is of value in a landscape or seascape rather than by quantitative assessments of value. This is less applicable in Category III protected areas designated for geological features, where systematic identification is possible. Management is usually focused on protecting and maintaining specific natural features.
- The fact that an area contains an important natural monument does not mean that it will inevitably be managed as a Category III protected area. For example, the Grand Canyon in Arizona is managed as a Category II protected area, despite being one of the most famous natural monuments in the world, because it is also a large and diverse area with associated recreation activities making it better suited as a Category II site. Category III is the most suitable designation where the protection of the feature is the sole or dominant objective.
- Category III is not confined to natural and pristine landscapes but could be established in areas that are otherwise cultural or fragmented landscapes.
- Visitation and recreation is often encouraged and research and monitoring limited to the understanding and maintenance of a particular natural feature.
- The emphasis of Category III management is not on protection of the whole ecosystem, but of particular natural features.
- Category III focuses on specific features and single values and emphasizes the monumentality, uniqueness, and/or rarity of individual features.
- Category III protected areas are frequently quite small and are aimed at encouraging visitors sometimes in large numbers.
- It will sometimes be difficult to ascertain the conservation attributes of Category III protected areas, particularly in cases where there may be pressure to accept sites within a protected area system to help protect cultural or spiritual values.
- Not all natural monuments are permanent – while some sacred trees have survived for a thousand years or more they will eventually die – indeed many trees are considered to be sacred in part because they are already very old. It is not clear what happens to a Category III protected area if its key natural monument dies or degrades.
- It is sometimes difficult to draw the boundaries between a natural monument and cultural site, particularly where archaeological remains are included within Category III.
- Some apparent 'monuments' may require protection of a larger ecosystem to survive – for example a waterfall may require protection of a whole watershed to maintain its flow.

Source: Dudley (2008:17-18)

Interpretation of the Other Considerations in Box 3-4

Size: The size of a Category III protected area depends on the features for which the area is nominated (Dudley, 2008:17-18). This criterion serves to distinguish between Category III and Category II protected areas (i.e., Category II protected areas should contain a representative sample of major natural regions, features, or scenery and are by implication, larger) (WCPA-Australia and New Zealand Region, 2000:22). In Algonquin Provincial Park, Historical Zones range from a few hectares (e.g., to protect archaeological sites) to nearly 400 ha to protect an old abandoned townsite known as the Mowat Complex (MNR, 1998a:20). For some smaller Category III protected areas, the inclusion or use of alternative protection mechanisms for surrounding areas required to protect the integrity of a feature (e.g., the water catchment area of karst features) may be warranted (WCPA-Australia and New Zealand Region, 2000:23).

Exploitation or Occupation: Recreational activities that have no deleterious effects on the area or its management objectives are considered compatible with Category III protected areas. For example, while minimum impact caving activities may be acceptable in a karst area, the collection of geological specimens would not be appropriate (WCPA-Australia and New Zealand Region, 2000:22). In Algonquin Provincial Park the Historical Zone system encompasses 48 historical sites and 38 archaeological sites. Historical Zones protect these sites by excluding high-intensity uses, such as logging and campground development, and limiting low-intensity uses such as trails for hiking and back-country campsites (MNR, 1998a:20).

Human Influence: This category is notable for its anthropocentric (human) rather than ecocentric (ecosystem) perspective and lists inherent rarity, representativeness, aesthetic qualities, or cultural significance as defining characteristics.

Category IV – Habitat/Species Management Area

Category IV protected areas are managed mainly for conservation through management intervention (Box 3-5).

Image by D. Paleczny

Interpretation of the Definition in Box 3-5

Active Intervention: The level of active intervention applied, where it is required to favour a specific species or habitat, is a distinguishing feature between Category IV and Category Ia protected areas (Dudley, 2008:19-20). In Ontario Provincial Parks, a number of management activities are permitted under specific circumstances, including the control of nuisance (displaced) animals, the control of rabid animals or Rabies (*Rhabdoviridae* family), the control of invasive fish and wildlife species, forest fire protection programs, prescribed burning, tree salvage in blowdowns, the control of insects and diseases, the control of invasive vegetation and insect species, and the management of water levels (MNR, 1992:41-46; MNR, 2005b:58-60). Normal management activities such as the control of feral animals and weeds do not constitute active intervention because they are not used to alter the natural systems of the area (WCPA-Australia and New Zealand Region, 2000:24). In Ontario, example interventions include maintaining water levels to sustain wetland habitat (e.g., Hilliardton Conservation Reserve in northeastern Ontario and the Hullett Provincial Wildlife Area in southwestern Ontario) and constructing artificial habitat such as nesting platforms for Loons (*Gavia immer*) and Ospreys (*Pandion haliaetus*) in Murphys Point Provincial Park in southeastern Ontario (Friends of Murphys Point Park, 2008).

Interpretation of the Objectives in Box 3-5

Secure and Maintain Habitat Conditions: The protected area should be of sufficient size and natural or manipulated quality to maintain a species in its habitat, or to maintain a portion of the life cycle of a particular species. Manipulation activities involve

Box 3-5. CATEGORY IV – Habitat/Species Management Area.

DEFINITION

Category IV protected areas aim to protect particular species or habitats and management reflects this priority. Although many category IV protected areas will need regular, active interventions to address the requirements of particular species or to maintain habitats, this is not a requirement of the category.

PRIMARY OBJECTIVE

- To maintain, conserve, and restore species and habitats.

It is important to note that this is a change from the 1994 guidelines, which defined Category IV as protected areas that need regular management interventions. The change was made because this was the only category to be defined by the process of management rather than the final objective and because in doing so it meant that small reserves selected to protect habits or individual species tend to fall outside the IUCN protected area categories system.

OTHER OBJECTIVES

- To protect vegetation patterns or other biological features through traditional management approaches.
- To protect fragments or habitats as components of landscape or seascape-scale conservation strategies.
- To develop public education and appreciation of the species and/or habitat concerned.
- To provide a means by which the urban residents may obtain regular contact with nature.

DISTINGUISHING FEATURES

Category IV protected areas usually help to protect, or restore (1) flora species of international, national, or local importance, (2) fauna species of international, national or local importance including resident or migratory fauna, and/or (3) habitats. The size of the area varies but can often be relatively small; this is however not a distinguishing feature. Management will differ depending on need. Protection may be sufficient to maintain particular habitats and/or species. However, as category IV protected areas often include fragments of an ecosystem, these areas may not be self-sustaining and will require regular and active management interventions to ensure the survival of specific habitats and/or to meet the needs of particular species. A number of approaches are suitable:

- Protection of Particular Species: To protect particular target species, which will usually be under threat (e.g., one of the last remaining populations).
- Protection of Habitats: To maintain or restore habitats, which will often be fragments of ecosystems.
- Active Management to Maintain Target Species: To maintain viable populations of particular species, which might include for example artificial habitat creation or maintenance (such as artificial reef creation), supplementary feeding or other active management systems.
- Active Management of Natural or Semi-natural Ecosystems: To maintain natural or semi-natural habitats that are either too small or too profoundly altered to be self-sustaining (e.g., if natural herbivores are absent they may need to be replaced by livestock or manual cutting, or if hydrology has been altered this may necessitate artificial drainage or irrigation).
- Active Management of Culturally-defined Ecosystems: To maintain cultural management systems where these have a unique associated biodiversity. Continual intervention is needed because the ecosystem has been created or at least substantially modified by management. The primary aim of management is maintenance of associated biodiversity.

Active management means that the overall functioning of the ecosystem is being modified by, for example, halting natural succession, providing supplementary food, or artificially creating habitats. Management will often include much more than just addressing threats, such as poaching or invasive species, as these activities take place in virtually all protected areas in any category and are therefore not diagnostic.

Category IV protected areas are normally accessible to the public.

Continued on page 49.

Box 3-5 continued.

Box 3-5. CATEGORY IV – Habitat/Species Management Area.

ROLE IN THE LANDSCAPE/SEASCAPE

Category IV protected areas frequently play a role in 'plugging the gaps' in conservation strategies by protecting key species or habitats. They could, for instance, be used to:

- Protect critically endangered populations of species that need particular management interventions to ensure their continued survival.
- Protect rare or threatened habitats including fragments of habitats.
- Secure stepping-stones (places for migratory species to feed and rest) or breeding sites.
- Provide flexible management strategies and options in buffer zones around, or connectivity conservation corridors between, more strictly protected areas that are more acceptable to local communities and other stakeholders.
- Maintain species that have become dependent on cultural landscapes where their original habitats have disappeared or been altered.

OTHER CONSIDERATIONS

- Category IV protected areas are not strictly protected from human use.
- Scientific research may take place but generally is a secondary objective.
- Category IV protected areas aim their conservation at particular species or habitats and may in consequence pay less attention to the elements of the ecosystem.
- Category IV protected areas use traditional management approaches to maintain associated species as part of a management plan.
- Category IV protected areas protect fragments of ecosystems or habitats, which often require continual management intervention to maintain.
- Category IV protected areas are likely to be quite small (e.g., individual marshes or fragments of a woodland), although there are exceptions.

Source: Dudley (2008:19-20)

selective alteration of habitats to favour a certain species or groups of species (WCPA-Australia and New Zealand Region, 2000:24). EUROPARC-España (2006:18) suggests that Spanish examples of Category IV areas include artificial wetlands that provide habitat for selected species and vegetation-clogged lakes that are dredged and provide wildlife habitat. In Ontario, the 2,200 ha Hullett Provincial Wildlife Area in southwestern Ontario along the South Maitland River which flows into Lake Huron at Goderich exemplifies some of the activities that are employed to manage IUCN Category IV protected areas (MNR1985b:2). About 800 ha of low-lying land were naturally flooded every spring, providing seasonal habitat to waterfowl, mammals and a variety of other species. The Ministry of Natural Resources completed engineering and hydrology studies in 1973-1974 to assess the potential for artificially maintaining water levels in the area throughout the year, and in 1979 signed a 99 year agreement with Ducks Unlimited to design, construct, and maintain the marshes at the Hullett Provincial Wildlife Area (MNR, 1985b:26). Specifically, the decision was to construct an extensive system of dykes parallel to the South Maitland River subdivided into several large impoundments that would capture spring meltwater and water from existing drains to augment the water supply during dry periods and to permit site managers to manipulate water levels in response to changes in the quality of marsh habitat (MNR, 1985b:26). The natural water flows of the South Maitland River are unaffected by the dykes. The system of dykes allows site managers to apply a variety of management practices to enhance habitat for waterfowl and upland species (MNR, 1985b:27). The Hullett Provincial Wildlife Management Area is managed by the Friends of Hullett Inc. in concert with a number of partners including Ducks Unlimited, the Ministry of Natural Resources, the Trillium Foundation, and Human Resources Canada.

Public Education: Public education and appreciation can include outdoor and indoor activities. For example, in partnership with the Trillium Foundation, the Hullett Provincial Wildlife Area now provides outdoor education opportunities and an indoor classroom and visitor services centre (Bennett, 2005).

Exploitation or Occupation: Any activity that is deleterious or contrary to the management intent of the area should be excluded. Minor areas of exploitation or occupation developed before designation of an area should not have a deleterious effect on the area (e.g., pollution). Examples of deleterious activities include mining, logging, grazing, and inappropriate recreational activities. If these deleterious activities are present, a policy to remove them is required (WCPA-Australia and New Zealand Region, 2000:24).

Active Management: Active management is any activity that alters the presumed natural ecological state of the area, especially where it favours a particular species or habitat. Habitat manipulation involves alteration of the structure or function of a natural or degraded habitat in order to achieve a particular management objective (WCPA-Australia and New Zealand Region, 2000:25). Highly modified areas that are being actively restored to their presumed former condition or are being managed to approximate ecological processes which historically existed (e.g., simulation of natural water regimes) also fit into this category. For example, extensive conifer plantations established in Pinery Provincial Park in southwestern Ontario have been removed in order to encourage indigenous species that comprise oak savannah ecosystems (Crabe et al., 1988; MNR, 1986a). It is important to note that such areas must still meet the definition of a protected area. The level of active intervention adopted distinguishes between Category IV and Category Ia protected areas. Normal management activities such as control of wild fire, feral animals, and weeds do not constitute active intervention because their intent is not to alter the natural systems of the area (WCPA-Australia and New Zealand Region, 2000:25).

Interpretation of the Role in the Other Considerations in Box 3-5

Size: This category can be used to classify individual remnants, which would otherwise be too small for long-term viability, perhaps without active management (WCPA-Australia and New Zealand Region, 2000:25). For example, many small National Wildlife Areas in Ontario protect specific habitats.

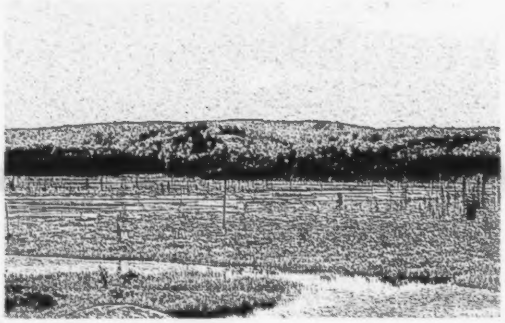


Image by P.A. Gray

Category V – Protected Landscape/Seascape

Category V protected areas are managed mainly for landscape/seascape conservation and to safeguard the human-nature interaction (Box 3-6).

Interpretation of the Definition in Box 3-6

Restoration, Buffering, Linkages: Many parts of southern Ontario are characterized by a mosaic of agricultural, forest patches, streams, wetlands, towns and cities, and other features. Growing awareness of the ecological, social, and economic benefits of natural areas to nearby urban and rural communities has led to positive support and action toward maintaining this balance (Whitelaw and Eagles, 2007). Areas such as the Niagara Escarpment, the Oak Ridges Moraine, the Greenbelt, the Lake Simcoe Watershed, and the National Capital Commission Greenbelt are reflections of this interest and consistent with the Category V protected area concept. The care of natural assets is provided for under the auspices of legislation (e.g., the *Greenbelt Act* and the *Lake Simcoe Protection Act*) and management plans (e.g., the *Oak Ridges Moraine Conservation Plan*) that explicitly recognize the importance of natural heritage area protection.

Interaction of People and Nature: Category V protected areas encompass modified landscapes that demonstrate historic and current day interaction between people and nature (Phillips, 2002:12). This interaction can include areas that demonstrate more recent settlement and technologies. Given the history of land use in Europe, many protected areas have been assigned to Category V. Most parks in Spain, for example, could be included in this category

Box 3-6. CATEGORY V – Protected Landscape/Seascape.

DEFINITION

A protected area where the interaction of people and nature over time has produced an area of distinct character with significant ecological, biological, cultural, and scenic value: and where safeguarding the integrity of this interaction is vital to protecting and sustaining the area and its associated nature conservation and other values.

PRIMARY OBJECTIVE

- To protect and sustain important landscapes/seascapes and the associated nature conservation and other values created by interactions with humans through traditional management practices.

OTHER OBJECTIVES

- To maintain a balanced interaction of nature and culture through the protection of landscapes and/or seascapes and associated traditional management approaches, societies, cultures, and spiritual values.
- To contribute to broad-scale conservation by maintaining species associated with cultural landscapes and/or by providing conservation opportunities in heavily used landscapes.
- To provide opportunities for enjoyment, well-being and socio-economic activity through recreation and tourism.
- To provide natural products and environmental services.
- To provide a framework to underpin active involvement by the community in the management of valued landscapes or seascapes and the natural and cultural heritage that they contain.
- To encourage the conservation of agrodiversity and aquatic biodiversity.
- To act as models of sustainability so that knowledge can be gained for wider application.

DISTINGUISHING FEATURES

Category V protected areas result from biotic, abiotic, and human interaction and should have the following essential characteristics:

- Landscape and/or costal and island seascape or high and/or distinct scenic quality with significant associated habitats, flora and fauna, and cultural features.
- A balanced interaction between people and nature that has endured over time and still has integrity, or where there is reasonable hope of restoring that integrity.
- Unique or traditional land-use patterns (e.g., as evidenced in sustainable agricultural and forestry systems and human settlements that have evolved in balance with their landscape).

The following are desirable characteristics:

- Opportunities for recreation and tourism consistent with life style and economic activities.
- Unique or traditional social organizations, as evidenced in local customs, livelihood, and beliefs.
- Recognition by artists of all kinds and in cultural traditions (now and in the past).
- Potential for ecological and/or landscape restoration.

ROLE IN THE LANDSCAPE/SEASCAPE

Generally, Category V protected areas play an important role in conservation at the landscape/seascape scale, particularly as part of a mosaic of management patterns, protected area designations, and other conservation mechanisms:

- Some Category V protected areas act as a buffer around a core of one or more strictly protected areas to help ensure that land and water-use activities do not threaten their integrity.
- Category V protected areas may also act as a linking habitat between several other protected areas.

Category V offers unique contributions to conservation of biological diversity. In particular:

- Species or habitats that have evolved in association with cultural management systems and can only survive if those management systems are maintained.
- To provide a framework when conservation objectives need to be met over a large area (e.g., for top predators) in crowded landscapes with a range of ownership patterns, governance models, and land use.
- In addition, traditional systems of management are often associated with important components of agrobiodiversity or aquatic biodiversity, which can be conserved only by maintaining those systems.

Continued on page 52.

Box 3-6 continued.

Box 3-6. CATEGORY V – Protected Landscape/Seascape

OTHER CONSIDERATIONS

- Being a relatively flexible model, Category V may sometimes offer conservation options where more strictly protected areas are not feasible.
- Category V protected areas can seek to maintain current practices, restore historical management systems, or perhaps most commonly, maintain key landscape values while accommodating contemporary development and change. Decisions about this need to be made in management plans.
- The emphasis on interactions of people and nature over time raises the conceptual question for any individual Category V protected area: at what point on the temporal continuum should management focus? And, in an area established to protect values based on traditional management systems, what happens when traditions change or are lost?
- Since social, economic, and conservation considerations are all integral to the Category V concept, defining measures of performance for all of these values is important in measuring success.
- As people are the stewards of the landscape or seascape (waterscape) in Category V protected areas, clear guidelines are needed about the extent to which decision making can be left to local inhabitants and how far a wider public interest should prevail when there is conflict between local and national needs.
- How is Category V distinguished from sustainable management in the wider landscape? As an area with exceptional values? As an example of best practice in management?
- Category V is perhaps the most quickly developing of any of the protected area management approaches.
- Human intervention is expected.
- Category V does not priorize research, though it can offer opportunities to study interactions between nature and people.
- Category V includes an option of continuous human interaction.
- Category V protected areas encompass broader landscapes and multiple values.
- Category V aims to protect overall landscapes and seascapes (waterscapes) that have value to biodiversity.
- Category V emphasizes values from long-term interactions of people and nature in modified conditions.
- Category V protected areas are generally cultural landscapes or seascapes (waterscapes) that have been altered by humans over hundreds or even thousands of years and that rely on continuing intervention to maintain their qualities including biodiversity.
- Many Category V protected areas contain permanent human settlements.
- There are still only a few examples of the application Category V in coastal and marine settings where a "protected seascape" approach could be the most appropriate management option and more examples are needed.

Source: Dudley (2008:20-22)

(EUROPARC-España, 2006:19). However, this is not a catch-all category for cultural and historic sites. Many cultural and historic sites do not meet the protected area criteria as defined in the IUCN guidelines (WCPA-Australia and New Zealand Region, 2000:26).

Interpretation of the Objectives in Box 3-6

Landscape with Manifestations of Traditional Land-use Patterns: Landscapes may meet this criterion if traditional human interaction has been maintained, there is a state of relatively high biological productivity, or the area contains a significant geomorphological feature (Dudley, 2008:20-22). For example, protected areas where grazing is a long and ongoing historical activity, intimately linked to the culture and lifestyle of the occupants, and where grazing is vital to conserving a substantial component of the area's biodiversity could qualify for this category (Phillips, 2002:10, WCPA-Australia and New Zealand Region, 2000:27). Sheep grazing in the Swiss Alps is an example.

Although Category V has ready application in a European context, some Aboriginal traditional lands (e.g., wild rice harvesting areas) and other landscapes may qualify in Ontario. For example, the Carden Alvar Provincial Park encompasses three ranch properties (Cameron, Windmill, and Art's Ranches) on the Carden Alvar, an important habitat for species at risk (Loggerhead Shrike [*Lanius ludovicianus*] and Henslow's Sparrow [*Ammodramus henslowii*]). Historically, the Cameron Ranch was used to raise cattle, and now is a working landscape where cattle are strategically used to enhance and maintain high-quality habitat for grassland birds (Ontario Parks, The Couchiching Conservancy, the Government of Canada, The Nature Conservancy, and Wildlife Preservation Canada, 2009). Without cattle grazing, trees and shrubs would invade and eliminate the grassland habitats. Therefore, rotational grazing is employed to maximize grazing potential and maintain the grassland habitats for birds. It provides the flexibility to manage grass heights in different areas to provide a variety of habitat conditions. By resting some habitats between grazing rotations, the volume and quality of forage for cattle also can be increased.

Harmonious Interaction: A principal consideration for qualification as a Category V protected area is that the area meets the criteria for a protected area. Therefore, even though Category V focuses on modified landscapes, the principal management objective must be the conservation of nature with associated ecosystem services and cultural values. Management programs developed for the National Capital Commission Greenbelt in Ottawa, the Greenbelt in the Golden Horseshoe area around the western end of Lake Ontario, the Niagara Escarpment, the Oak Ridges Moraine, and the Lake Simcoe Watershed are all guided by explicit commitments to nature conservation. For example, the *Niagara Escarpment Planning and Development Act* was established "*to provide for the maintenance of the Niagara Escarpment and land in its vicinity substantially as a continuous natural environment, and to ensure only such development occurs as is compatible with that natural environment*" (Statutes of Ontario, 1990c). Moreover, an objective of the *Oak Ridges Moraine Conservation Plan* is to "*protect the ecological and hydrological integrity of the Oak Ridges Moraine area*" (MMAH, 2002). Similarly, an objective of the *Lake Simcoe Protection Plan* is to "*protect, improve, or restore the elements that contribute to the ecological health of the Lake Simcoe watershed, including water quality, hydrology, key natural heritage features and their functions, and key hydrological features and their functions*" (MOE, MNR, LSRCA, and DMTI Spatial Inc., 2009:8).

Image by P.A. Gray

Community Involvement: Community involvement is an important aspect of caring for natural assets in Category V protected areas. The role of people in the management of Category V protected areas is re-enforced in the WCPA Best Practice Protected Areas Guideline Series, which states that policies for Category V protected areas should:

1. Place local people as the stewards of Category V areas and at the centre of management planning.
2. Consider the implications of land ownership.
3. Adopt policies that involve local people in decision-making and management (Phillips, 2002:18).

Category VI – Protected Area with Sustainable Use of Natural Resources

A Protected Area With Sustainable Use of Natural Resources (previously known as Managed Resource Protected Areas) is managed primarily for the sustainable use of natural ecosystems (Box 3-7), and like a Category V protected area is managed for multiple-use (Bishop et al., 2004:137).

Interpretation of the Definition and Objectives in Box 3-7

Protect Biological Diversity: The area must fit within the overall definition of a protected area and have a primary management objective focused on the protection and maintenance of biological diversity. Sites for which resource use is the primary management objective and biodiversity conservation is a secondary objective do not meet the criteria for recognition as a protected area (WCPA-Australia and New Zealand Region, 2000:30).

Size and Compatible Use: Category VI protected areas must be large enough to absorb sustainable resource uses without damaging natural values in the long-term (Bishop et al., 2004:137). And resource use in Category VI protected areas must occur according to a formal suite of management safeguards designed to ensure the long-term viability of the values for which the area is protected. Natural resource use must occur in an ecologically sustainable manner as outlined in legislation and/or a management plan, and a monitoring program must be established (Dudley, 2008:22-23).

Long-term protection does not imply that short-term disruption is necessarily acceptable, particularly when that disruption conflicts with the objectives for Category VI protected areas (WCPA-Australia and New Zealand Region, 2000:29).

Interpretation of the Distinguishing Features in Box 3-7

General: At least four conditions should apply in order for an area to qualify as a Category VI protected area under the auspices of the IUCN classification:

- The area should conform to the overall definition of a protected area in order to qualify (i.e., conservation of nature is a key management objective).
- A proportion of the area is retained in a natural condition. Some countries retain at least two-thirds of the area in a natural state
- Large commercial plantations (and in Ontario large commercial forest operations as well) do not exist.
- A management authority is in place (Dudley, 2008:22; WCPA-Australia and New Zealand Region, 2000:29).

Sustainable Flow: The Australian Nature Conservation Agency (WCPA-Australia and New Zealand Region, 2000) maintains that any natural resource that is exploited within a Category VI protected area should be essential or very significant for regional (e.g., provincial) or national development and should only be exploited if no alternative viable source is available. Exploitation should be undertaken in an ecologically sustainable manner and in concert with a management plan or statement of management intent.

Does this mean that Category VI protected areas can be used for large-scale industrial activities? No; this is clearly stated in the definition and objectives (Dudley, 2008:22). All categories of protected areas in the IUCN classification system are intended to be permanent designations, which provide long-term conservation of nature and other values. The use of such categories, which envisage a degree of human presence and sustainable resource use, does not mean abandoning protection in these areas. Accordingly, the World Commission on Protected Areas believes that large-scale commercial activities such as clearcut logging, tree plantation establishment and other forms of industrial forest management, mining, unrestrained tourism, and major infrastructure projects are not compatible with any of the IUCN protected area categories (Phillips, 1998a, b).

Two-thirds Natural Condition Rule: Some jurisdictions require that at least 2/3 of the area should be in natural condition (see Box 3-8 on page 62 for a definition of 'natural'). This rule must not be confused with the definition of a protected area, which requires that at least 75% of the area be managed for the primary purpose of biodiversity conservation (see Guideline A on page 62). Any activities undertaken in Category VI protected areas should satisfy both rules (WCPA-Australia and New Zealand Region, 2000:31).

Inclusion in Category VI does not mean that resource use within an area is automatic. Rather, it means that resource use may take place with correct safeguards designed to ensure the long-term viability of conservation values of the protected area (Bishop et al., 2004:153). The nature of resource use must be legislatively defined in the proclamation of the protected area or it must be defined in a management plan or equivalent statement of management intent, which is subject to a parliamentary or public review process.

Size: Category VI protected areas generally will be large in size and certainly should be large enough to absorb sustainable resource use without compromising the long-term maintenance of natural

Box 3-7. CATEGORY VI – Protected Area With Sustainable Use of Natural Resources.

DEFINITION

Category VI protected areas conserve ecosystems and habitats, together with associated cultural values and traditional natural resource management systems. They are generally large, with most of the area in a natural condition, where a proportion is under sustainable natural resource management and where low-level non-industrial use of natural resources compatible with nature conservation is seen as one of the main aims of the area.

PRIMARY OBJECTIVE

- To protect natural ecosystems and use natural resources sustainably, when conservation and sustainable use can be mutually beneficial.

OTHER OBJECTIVES

- To promote sustainable use of natural resources, considering ecological, economic, and special dimensions.
- To promote social and economic benefits to local communities where relevant.
- To facilitate inter-generational security for local communities' livelihoods – therefore ensuring that such livelihoods are sustainable.
- To integrate other cultural approaches, belief systems and word-views within a range of social and economic approaches to nature conservation.
- To contribute to developing and/or maintaining a more balanced relationship between humans and the rest of nature.
- To contribute to sustainable development at national, regional, and local levels (in the last case mainly to local communities and/or indigenous peoples depending on the protected natural resources).
- To facilitate scientific research and environmental monitoring, mainly related to the conservation and sustainable use of natural resources.
- To collaborate in the delivery of benefits to people, mostly in local communities living in or near the designated area.
- To facilitate recreation and appropriate small-scale tourism.

DISTINGUISHING FEATURES

- Category VI protected areas, uniquely amongst the IUCN categories system, have the sustainable use of natural resources as a means to achieve nature conservation, together and in synergy with other actions more common to the other categories, such as protection.
- Category VI protected areas aim to conserve ecosystems and habitats, together with associated cultural values and natural resource management systems. Therefore, protected areas in this category tend to be relatively large (although this is not obligatory).
- The category is not designed to accommodate large-scale industrial harvest.
- In general, IUCN recommends that a proportion of the area is retained in a natural condition (note that this does not necessarily preclude low-level activity, such as the collection of non-timber forest products), which in some cases might imply its definition as a no-take management zone. Some countries have set this as two-thirds. IUCN recommends that decisions need to be made at a national level and sometimes even at the level of the individual protected area.

ROLE IN THE LANDSCAPE

- Category VI protected areas are particularly adapted to the application of landscape approaches.
- This is an appropriate category for large natural areas, such as tropical forests, deserts and other arid lands, complex wetland systems, coastal and high seas, boreal forests, etc. – not only by establishing large protected areas, but also by linking with groups of protected areas, corridors, or ecological networks.
- Category VI protected areas may also be particularly appropriate to the conservation of natural ecosystems when there are few or no areas without use or occupation and where those uses and occupations are mostly traditional and low-impact practices, which have not substantially affected the state of the ecosystem.

Continued on page 56

Box 3-7. CATEGORY VI – Protected Area With Sustainable Use of Natural Resources.

OTHER CONSIDERATIONS

- Category VI protected areas do conserve biodiversity, particularly at the ecosystem and landscape scale, but the aim would not be to protect them strictly from human activity.
- Although scientific research may be important, it would be considered a priority only when applied to sustainable uses of natural resources, either in order to improve them, or to understand how to minimize their impacts on ecological sustainability.
- Category VI protected areas in certain cases could be considered close to "wilderness", however they explicitly promote sustainable use.
- Category VI protected areas contribute to the maintenance of environmental services.
- Category VI protected areas aim to conserve ecosystems, as complete and functional as possible, and their species and genetic diversity and associated environmental services.
- Tourism can be developed in Category VI protected areas, but only as a secondary activity or when it is part of the socio-economic strategies used by a local community (e.g., in relation to ecotourism development).
- Category VI protected area objectives might include the protection of specific natural or cultural features, including species and genetic diversity, but they are more oriented to the protection of ecosystems, ecological processes, and maintenance of environmental services through nature protection and promotion of management approaches that lead to the sustainable use of natural resources.
- Category VI emphasizes the need to link nature conservation in natural areas while supporting sustainable livelihoods.
- Emphasis is placed on sustainable use of environmental products and services (typically hunting, grazing, and management of natural resources) in Category VI protected areas.
- Management interventions are aimed at linking nature conservation with sustainable use of resources.
- Category VI protected areas may encompass other categories of protected areas.
- Protection of natural ecosystems and promotion of sustainable use must be integrated and mutually beneficial.
- Category VI can potentially demonstrate best management practices and serve as case studies.

Source: Dudley (2008:22-23)

and cultural values (WCPA-Australia and New Zealand Region, 2000:31).

Sound Management Practices: Sustainable production refers to the ecologically sustainable management of an area. A use is not sustainable if it damages the natural values of an area. For example, mining of limestone karst is not sustainable whereas some water catchment activities are sustainable (WCPA-Australia and New Zealand Region, 2000:30).

In the case of water catchment areas where the principal management objective is water production, the question is whether management can be interpreted as having an unambiguous remit for conservation and not just simply the apparent naturalness of the area. Where a nature conservation agency is involved in the management of a water catchment area (e.g., through the preparation of a management plan) and where the principal objective of that management plan is nature conservation, then a catchment may be defined as a protected area. Where a water catchment occurs within an area managed by a nature conservation agency, the legislation that takes precedence should be considered. Some of these areas may be eligible for inclusion as Category Ia, II, and IV protected areas (WCPA-Australia and New Zealand Region, 2000:30).

Methodology for Applying the IUCN Management Categories

A rational and consistent application of the IUCN protected area classification is an important standard for the collection and management of data and information about protected areas, and

Image by D. Paleczny

for comparing protected area programs around the world (Bishop et al., 2004; Dudley, 2008:5, IUCN, 1994; Phillips, 2002; Wilkinson, 2002, 2005; and many others). Accordingly, data and information about Ontario's natural heritage areas were compiled from international, federal, provincial, municipal, and private initiatives (summarized in Part II of this document), and compared against IUCN categories in an effort to:

- Match each type of natural heritage area in Ontario to an IUCN protected area category.
- Identify qualifying characteristics or conditions.
- Identify disqualifying characteristics or conditions.
- Assess the potential utility of using the IUCN categories as a surrogate classification system for Ontario's natural heritage areas.

A diagnostic key (Fig. 3-1) was developed to assist natural asset managers to classify their area(s). The decision key asks a series of questions comprised of key words and concepts that reflect:

- The IUCN definition of protected area.
- A combination of definitions and objectives for each IUCN protected area category.
- One quantifiable selection criterion to help natural asset managers assess potential IUCN Category VI protected areas.

It is recommended that users of the diagnostic key confirm the comparative match of Ontario's natural heritage areas to the IUCN categories using the detailed descriptions of each type of protected area category provided in Dudley (2008). For the purposes of this report, we also used the 'standards of protection' (see Box 2-4 on page 21) to differentiate areas that are 'fully protected' or 'partially protected'. Our review of the IUCN categories described in Boxes 3-1 to 3-7 was enhanced by observations provided by Lewis et al. (1994) for British Columbia, by Boisseau and Gauthier (1998) for Quebec, by the NWT Protected Areas Advisory Committee (1999) for the Northwest Territories, by the WCPA-Australia and New Zealand Region (2000), by MCPFE (2001) for Europe, by Paleczny et al. (2002) for Ontario, by EUROPARC-España (2006) for Spain, and by the CCEA (2007) for Canada.

Jurisdictions could potentially apply the IUCN categories in one of two ways – either select one IUCN category to represent a whole area or apply multiple IUCN categories to sub-areas (or sub-designations). The appropriate approach for the circumstance should be selected by the sponsoring agency or organization.

Application of one category that reflects the 'best fit' for the entire protected area is easier from an administrative view. Often, boundaries of protected areas are established and area dimensions are known. In some situations however, application of one IUCN category to an area may not reflect the diversity of values that are protected. For example, many different designations can be located within the boundaries of larger natural heritage areas such as the Greenbelt, the Oak Ridges Moraine, and the Niagara Escarpment (also a Biosphere Reserve).

In some natural heritage areas, management zones are used in various combinations to meet specific goal(s) and objectives (see Fig. 2-2 on page 27), which can be matched to various IUCN categories. For example, Nature Reserve Zones and Wilderness Zones in Provincial Parks are strictly managed areas where few human activities are permitted, while Access Zones and Development Zones provide parking lots and other facilities in support of park goals and objectives. Access Zones and Development Zones are relatively small. For example, Access Zones encompass 0.05% of Quetico Provincial Wilderness Park in the northwest (MNR, 1989) and 0.4% of Brightsand River Provincial Waterway Park (MNR, 1993) in the north. And in Lake Nipigon Provincial Natural Environment Park, a Development Zone comprises 4.4% of the park area (MNR, 1988a). There is no Access Zone in Pushkin Provincial Nature Reserve because it is easily accessed from adjacent roads (MNR, 1988b). In this context, Access Zones and Development Zones enhance the protection and/or conservation objectives established for other zones such as Nature Reserve Zones and Wilderness Zones.

The IUCN recommends that assignment of 'management zones' to protected area categories is not necessary, but may be relevant in larger protected areas where individual management zones are significant protected areas in their own right (Dudley, 2008:37). In such cases, management zones can be assigned to an IUCN category when they are clearly mapped, are recognized by legal or other effective means, and when they have distinct and unambiguous management aims.

The IUCN system does not recommend the use of management zones where the zone boundaries can be changed as part of the regular planning process (Dudley, 2008:37). In Ontario, this rule may not apply to some natural heritage areas because of the rigid procedures required for amendments. For example, any amendment to a Provincial Park or Conservation Reserve management plan must be subjected to at least two consultation opportunities, including a posting in the Environmental Registry under the *Environmental Bill of Rights Act* (Statutes of Ontario, 1993), and the approval of the Minister of Natural Resources.

Guidelines for Application of Ontario's Natural Heritage Areas to the IUCN Classification

To assist natural asset managers in their efforts to assign natural heritage areas an IUCN category, a step-by-step identification key comprised of 11 guiding questions was created for Ontario (Fig. 3-1).

Guideline A: Is the area a clearly defined geographical space recognized, dedicated, and managed to achieve the long-term conservation of nature with associated ecosystem services and cultural values?

Explanation of the guideline includes:

- **Clearly Defined Geographical Space:** Waterscapes, landscapes, and airscapes are cared for in clearly defined areas of three-dimensional space and time (the fourth dimension). An area's borders can be defined by physical features such as geological formations or by management actions designed to guide human behaviour (e.g., when and where infrastructure development is or is not permitted).

- **Recognized:** The area is formally acknowledged in some way by society and is listed, mapped, and/ or described (e.g., inclusion in the World Database on Protected Areas; see Appendix 1).

- **Dedicated:** A dedicated area represents a commitment to long-term conservation through individual or combinations of international conventions and agreements, domestic legislation, private trusts, and organization policies.

- **Managed:** The term management implies activities to conserve natural and possibly other (cultural and social) values for which the protected area was established. It is important to note that management can range from decisions to maintain an area in an untouched state to types of active intervention.

- **To Achieve:** This action implies a commitment to some level of effective management in response to a desired state or condition. And while allocation of areas to IUCN categories will continue to be based on a management objective, it is anticipated that management effectiveness will become an important criterion in the identification and recognition of protected areas in the future.

- **Long-term:** Protected areas should be managed in perpetuity, not as short-term or temporary commitments.

Image by P.A. Gray

- **Conservation:** Conservation refers to the *in-situ* maintenance of ecosystems and natural and semi-natural habitats and of viable populations of species in their natural surroundings. In the case of domesticated or cultivated species, conservation refers to the *in-situ* maintenance where they have developed their distinctive qualities. In this context, agrobiodiversity includes wild plants closely related to crops (crop wild relatives), cultivated plants (landraces), and livestock varieties. Agrobiodiversity can be an objective of protected areas for crop wild relatives, traditional or threatened landraces, particularly those reliant on traditional cultural practices, and/or traditional and threatened livestock races, especially if they are reliant on traditional cultural management systems that are compatible with 'wild biodiversity'.

- **Nature:** Nature always refers to biodiversity, at genetic, species, and ecosystem levels of organization. It also refers to geodiversity, landform, and other natural values that may be important to the sponsoring jurisdiction.

- **Associated Ecosystem Services:** Associated ecosystem services refers to the variety of life-support values that are related to but do not interfere with the aim of nature conservation. Services can include provisioning services (e.g., food and water), regulating services (e.g., to reduce or eliminate the impacts of floods, drought, land degradation, and diseases), supporting services (e.g., soil formation and nutrient cycling), and cultural services (e.g., recreational, spiritual, and other non-material benefits).

- **Cultural Values:** Cultural values include values that do not interfere with the conservation outcome, including values that contribute to conservation outcomes (e.g., traditional management practices on which key species depend) and values that are themselves under threat. All cultural values in a protected area should meet the 'non-interference' criterion described under 'Associated Ecosystem Services' above (Dudley, 2008:8-9).

The standards for protection proposed for Ontario (see Box 2-4 on page 21) used to differentiate areas that are 'fully protected' or 'partially protected' contain four criteria that reflect the IUCN definition of a protected area and should be met for Guideline A:

1) Protection must be the primary objective.
2) A permanent commitment to protect the area is made.
3) Industrial activities (e.g., mineral exploration and development) and large-scale developments (urban infrastructure) are prohibited.
4) The area is protected throughout the year.

Image by P.A. Gray

In Ontario, Guideline A accounts for biodiversity values, earth science values, and social/cultural values. For clarity, our interpretation includes:

- Cultural resources presented in their natural setting, especially where specific interactions with the surrounding airscape, landscape, and waterscape are evident. For example, the Ontario Parks program sponsored an historical systems planning initiative in the 1970s focused on the identification and protection of historical assets. Areas selected for protection were categorized according to three conceptual groupings (i.e., economic and social, military, and political), 13 themes (four Aboriginal and nine non-Aboriginal cultural activities), and 115 sub-themes (Davidson, 1997; Forma, 1982; MNR, 1975b, 1992). Similarly, Parks Canada manages or contributes to the management of a suite of historic sites that are classified according to five broad, inter-related themes, each of which has a number of sub-themes (Parks Canada, 2000).
- Earth science features that represent one or more aspects of Ontario's geological or geomorphological formations. While earth science features are not explicitly recognized in the IUCN definition of protected area, they are included in the descriptions of the various categories. In Ontario, the Ministry of Natural Resources has an established earth science framework that sets out protection targets for over 1,200 representative earth science areas (Crins and Kor, 1998, 2000; Davidson, 1981).

The dedication of an area for the long-term conservation of nature with associated ecosystem services and cultural values does not necessarily require that the area be in a natural condition although generally this will be the case (Box 3-8). IUCN categories Ia, Ib, II, III, and VI apply to natural or substantially natural areas and categories IV and V apply to areas which may have been, in part, modified or actively managed for specific reasons.

An area is excluded if one or more of the following conditions apply:

- The principal management objective is not directly related to the *"conservation of nature with associated ecosystem services and cultural values"* (see definition on page 19), irrespective of whether nature conservation is a secondary or incidental outcome. For example, a water catchment protected from interference should not be automatically considered a protected area because where the primary objective is to supply potable water, the managing agency may choose to achieve this objective through increased chemical treatment or with land-uses that are not necessarily compatible with nature conservation.
- It protects cultural resources with no substantial natural area or relationship to the natural context (e.g., a heritage building in an urban setting protected under the auspices of an historic sites program).
- The commitment is not permanent.
- The protection mandate is time-specific and not year-round.
- The commitment does not include the protection of ecosystem function (habitat) and composition (species) by excluding industrial activities and large scale development.

In most jurisdictions, land uses that jeopardize protected area objectives are normally excluded from formally protected areas like Provincial Parks and Conservation Reserves. We interpret land uses that jeopardize protection objectives to mean industrial activities such as commercial logging, hydro-electric development, and mining. But what about the disposition of protected areas in which activities that do not alter the essential ecological character of the area are permitted? For example, should some areas be excluded because they contain tourist lodges and camps or permit sustainable fishing in an otherwise strictly protected area? In such cases

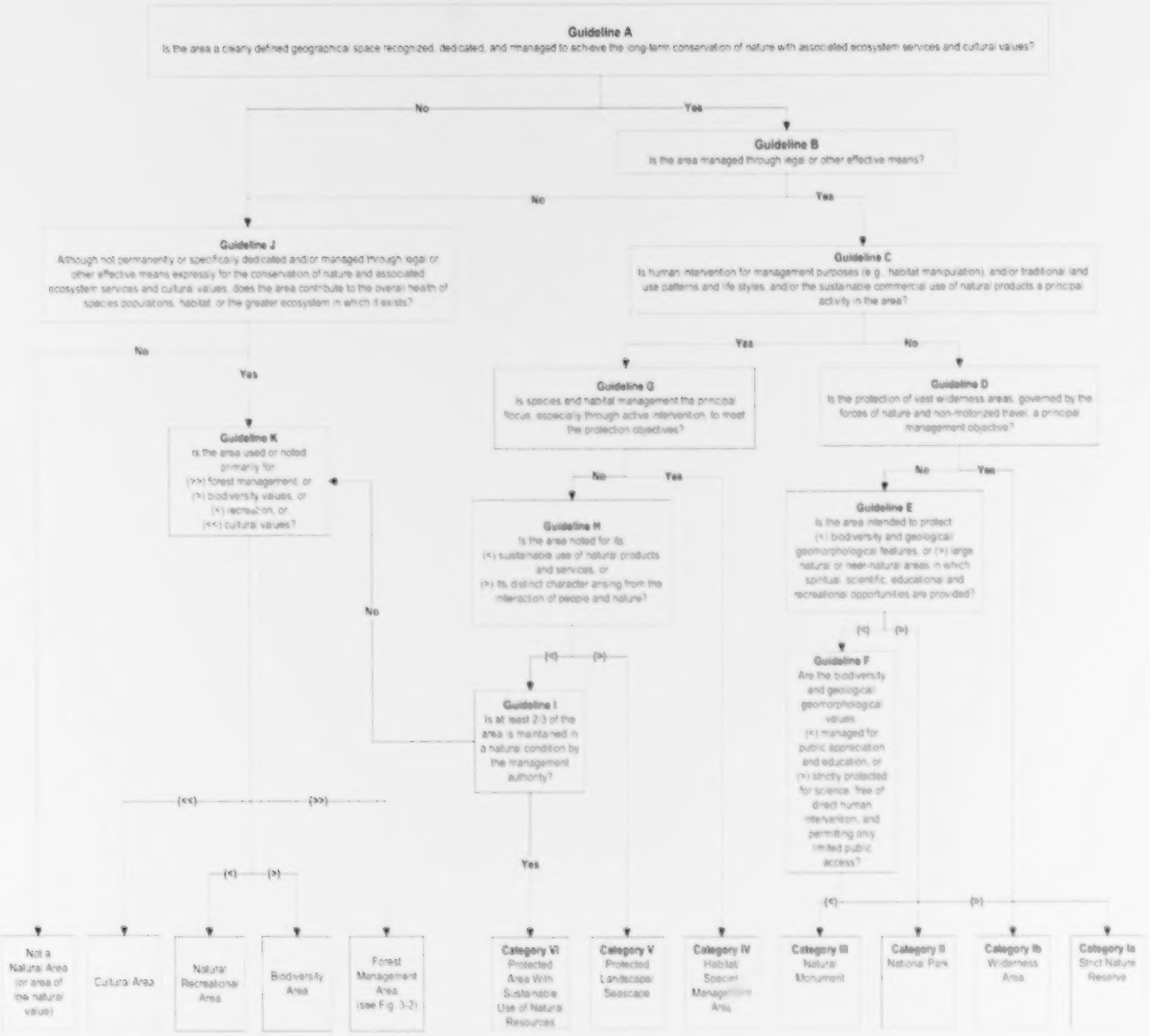

Guideline A
Is the area a clearly defined geographical space recognized, dedicated, and managed to achieve the long-term conservation of nature with associated ecosystem services and cultural values?
No
Yes
Guideline B
Is the area managed through legal or other effective means?
No
Yes
Guideline J
Although not permanently or specifically dedicated and/or managed through legal or other effective means expressly for the conservation of nature and associated ecosystem services and cultural values, does the area contribute to the overall health of species populations, habitat, or the greater ecosystem in which it exists?
No
Yes
Guideline K
Is the area used or noted primarily for
(>>) forest management, or
(>) biodiversity values, or
(<) recreation, or
(<<) cultural values?
Guideline C
Is human intervention for management purposes (e.g., habitat manipulation), and/or traditional land use patterns and life styles, and/or the sustainable commercial use of natural products a principal activity in the area?
Yes
No
Guideline G
Is species and habitat management the principal focus, especially through active intervention, to meet the protection objectives?
Guideline D
Is the protection of vast wilderness areas, governed by the forces of nature and non-motorized travel, a principal management objective?
No
Yes
No
Yes
Guideline H
Is the area noted for its
(<) sustainable use of natural products and services, or
(>) its distinct character arising from the interaction of people and nature?
Guideline E
Is the area intended to protect
(<) biodiversity and geological geomorphological features, or (>) large natural or near-natural areas in which spiritual, scientific, educational and recreational opportunities are provided?
No
(<)
(>)
(<)
(>)
Guideline F
Are the biodiversity and geological geomorphological values
(<) managed for public appreciation and education, or
(>) strictly protected for science, free of direct human intervention, and permitting only limited public access?
Guideline I
Is at least 2/3 of the area is maintained in a natural condition by the management authority?
(<<)
(>>)
Yes
(<)
(>)
(<)
(>)
Not a Natural Area (or area of low natural value)
Cultural Area
Natural Recreational Area
Biodiversity Area
Forest Management Area (see Fig. 3-2)
Category VI Protected Area With Sustainable Use of Natural Resources
Category V Protected Landscape/ Seascape
Category IV Habitat/ Species Management Area
Category III Natural Monument
Category II National Park
Category Ib Wilderness Area
Category Ia Strict Nature Reserve

Figure 3-1. A key designed to help natural asset managers determine the degree of protection and the IUCN protected area management categories for Ontario's natural heritage areas.

Box 3-8. The definition of 'natural'.

The IUCN guidelines frequently refer to natural areas or areas with natural features. The term 'natural' (or 'unmodified' areas) is defined in the guidelines as areas that still retain a complete or almost complete complement of species native to the area, with more-or-less naturally functioning ecosystems (Dudley, 2008:12).

Use of this definition in many parts of the world is difficult because substantial portions of ecosystems have been significantly altered, such as in the Mediterranean (EUROPARC-España, 2006) and in southern Ontario ecosystems. Few areas in southern Ontario can now be regarded as substantially free of the influences of European-type settlement (e.g., presence of an introduced species). A strict interpretation of the term 'natural' would result in the elimination of the use of a number of valuable types of areas in some of the IUCN categories. Therefore, for the purposes of this document, a 'natural' area is an area which largely retains the landscape and waterscape character that existed prior to European settlement.

Recommended use of terms such as 'natural' and 'unmodified' are not intended to hide or deny the long-term stewardship of indigenous and traditional peoples where it exists. In fact, the guidelines acknowledge the value of these forms of management to the maintenance of biodiversity (Dudley, 2008:12).

the IUCN recommends use of a 'three-quarters rule' that stipulates that the primary objective of nature conservation should apply to 75% of the protected area (Dudley, 2008:35). Therefore, up to 25% of the lands and/or water within a protected area can be managed in a way that includes uses that are compatible with the primary objective of the protected area.

How does Algonquin Provincial Park relate to the 'three-quarters rule'? Given that commercial logging is permitted in more than 25% of the Recreation-Utilization Zone, which encompasses more than 25% of the park (Table 3-1), Algonquin would not qualify (also see MNR, 1998a). But what about the remaining Nature Reserve Zones, Wilderness Zones, Natural Environment Zones, and Historical Zones? When assessed separately, and assuming that the management planning process used by Ontario Parks is deemed strict enough (i.e., any amendment to a Provincial Park management plan must be subjected to at least two consultation opportunities, including a posting in the Environmental Registry under the *Environmental Bill of Rights Act*, and the approval of the Minister of Natural Resources), 22% of Algonquin would qualify for inclusion in the IUCN protected area classification system (see Table 3-1). Historically, World Wildlife Fund Canada omitted the Recreation-Utilization Zone from Ontario's total protected area statistic in its Endangered Spaces progress reports (e.g., WWF, 1991, 1995), but included the area encompassed by the other zones. In this context, scale and an acceptable level of rigor in application of the management plan are important factors in the assessment and inclusion of an area as 'fully protected' in an IUCN category. On 6 November 2009 the Minister of Natural Resources accepted recommendations by the Ontario Parks Board of Directors and the Algonquin Forestry Authority Board of Directors (2009) to increase protection from 22 to 35%.

Guideline B: Is the area managed through legal or other effective means?

The protection standards developed for this report (see Box 2-4 on page 21) used to differentiate 'fully protected' and 'partially protected' areas contain one criterion (i.e., strength of commitment) that must be met for Guideline B. As the IUCN guidelines indicate, the designated management authority can be at any level of government or reside within the private sector or the community (Dudley, 2008:26). But the authority must be capable of achieving the management objectives. The guidelines imply that the managing organization will operate within, or in response to, some type of legislative framework. Legal Acts of Parliament and enabling regulations provide the requirements to meet this condition, as do certain legal agreements, covenants, or declared objectives of private organizations.

An agency or organization can meet the requirements of this guideline if one or more of the following conditions apply:

Table 3-1 The zones in Algonquin Provincial Park.[1]

Zone Type	Area (ha)	% of Park Area
Nature Reserve	38,996	5.1
Wilderness	90,767	11.9
Natural Environment	13,886	1.8
Historical	1,610	0.2
Development	22,502	3.0
Access	824	0.1
Recreation/Utilization	594,874	77.9
Total	**763,459**	**100.0**

Source: J. Good, personal communication.

[1] On 6 November 2009 the Minister of Natural Resources accepted recommendations by the Ontario Parks Board of Directors and the Algonquin Forestry Authority Board of Directors (2009) to increase protection from 22 to 35%. The area removed from commercial forestry operations will increase by 98,202 ha.

Image by M. Wester

- It is designated under provisions of a particular statute, where the tenure or land use of the area cannot be altered except by a federal or provincial/territorial public process (e.g., National Park or Provincial Park).
- It is designated by a recognized NGO that subscribes to relevant legislation, regulations, and/or explicit policy in the formulation of the protection commitment.
- The area is subject to a protective covenant or title or agreement under the provisions of land titles legislation or biodiversity (including fish and wildlife) conservation legislation. The covenant and land uses allowed should be subject to alteration only by a Minister of Parliament in consultation with the Minister responsible for administering environmental planning and/or conservation and biodiversity issues for the jurisdiction. Private lands subject to these types of covenants meet this condition.
- The area is designated or recognized under the provisions of a particular Act and subject to a legally adopted management plan or equivalent enforceable statement of management intent, which has the principal management objective oriented towards the conservation of nature and associated ecosystem services and cultural values.
- Under authority of legislation and regulations, the area is subject to a long-term conservation agreement with an agency responsible for nature conservation. For example, an area of First Nations land may be included provided that inclusion is endorsed by the traditional owners and the principal management objectives are oriented towards the conservation of nature and associated ecosystem services and cultural values. As noted in Chapter 2, this discussion paper distinguishes between 'fully protected' areas (areas protected in perpetuity) and 'partially protected' areas (agreements that span less than 99 years), and therefore, 'long-term' is interpreted to mean more than 99 years.

An area is excluded if one or more of the following conditions apply:

- It is designated under the provisions of a particular Act, where the tenure or land use of the area may be altered without parliamentary process.
- It is designated under the provisions of a particular Act or formal commitment where the designation does not require active steps to conserve values for which the area was established. In this case, active steps can include decisions to ensure that the area remains untouched.
- Government or corporate policies, long-term agreements, statements of management intent, and management plans are not subject to a particular Act or regulation, or a formal commitment by a recognized non-government organization.
- It is privately owned land that is not subject to covenant on title or an appropriate long-term

conservation agreement with an agency or organization responsible for nature conservation.

- The area is subject to inappropriate land uses such as mining, plantation or commercial forestry, and hydro-electric development.

Guideline C: Is human intervention for management purposes (e.g., habitat manipulation), and/or traditional land use patterns and life styles, and/or the sustainable commercial use of natural products a principal activity in the area?

Guideline C distinguishes between areas in which habitat manipulation, traditional land use patterns, or sustainable use of natural products is a key activity in the area. This guideline is based on the IUCN definition of Category IV areas (*"Many category IV protected areas will need regular, active interventions to address the requirements of particular species or to maintain habitats…"*) (Dudley, 2008:19), Category V areas (*"…where the interaction of people and nature over time has produced an area of distinct character with significant ecological, biological, cultural and scenic value…"*) (Dudley, 2008:20), and Category VI areas (*"…where a proportion is under sustainable natural resource management and where low-level non-industrial use of natural resources compatible with nature conservation is seen as one of the main aims of the area."*) (Dudley, 2008:22).

Guideline D: Is the protection of vast wilderness areas governed by the forces of nature and non-motorized travel, a principal management objective?

What is wilderness? There is no single definition of wilderness because people perceive and value wilderness in many ways and for many different reasons. To some, wilderness can be a small ravine or an isolated woodlot inside the boundaries of a city. Others embrace a definition of wilderness that includes thousands of hectares far removed from roads and human activity. The *Provincial Parks and Conservation Reserves Act* (Statutes of Ontario, 2006) defines wilderness as *"…large areas where the forces of nature can exist freely and visitors travel primarily by non-mechanized means while engaging in low-impact recreation to experience solitude, challenge, and integration with nature."* This definition is consistent with those used by other organizations such as the IUCN, where recurring themes include vastness and roadlessness – areas in which visitors can experience natural solitude in relatively pristine areas for extended periods of time. In this discussion paper, wilderness is a vast and primeval place with pristine airscapes, landscapes, and waterscapes, native plants and animals, and clean water, soil, and air. It is a place where nature functions freely, unmarred by industrial or agricultural development. Wilderness is a place of natural wonder, a place for scientific and educational discovery, and a place of solitude. Wilderness is a place where visitors minimize their impact on the landscapes and waterscapes with low-impact camping and travel by non-mechanized means.

Generally, the size of the natural heritage area should reflect the extent of land and water needed to accomplish the purposes of management. Although the IUCN guidelines are not wholly based on an absolute size requirement, the area should be large enough to achieve the principal management objective(s). In some IUCN categories, size is an explicit parameter. For example, descriptions for IUCN Categories Ib, II, V, and VI imply large areas, while the description for Category III implies smaller areas through inclusion of specific site values such as waterfalls, caves, craters, fossil beds, sand dunes, and marine features, along with unique or representative flora and fauna (Dudley, 2008:36). In Ontario, Polar Bear Provincial Park along the Hudson Bay coast and Pukaskwa National Park along the northeastern shore of Lake Superior exemplify Category Ib protected areas (Wilderness Areas).

The role of adjoining areas may be considered in assessing this criterion because the type and intensity of surrounding land uses can significantly impact protected area viability and vitality. For example, most Wilderness Areas designated under the *Wilderness Areas Act* do not qualify as IUCN Category Ib protected areas because the Act only provides for the protection of wilderness in Wilderness Areas that are less than 260 ha. The natural assets contained in Wilderness Areas greater than 260 ha are subject to development and use. Of the 33 regulated Wilderness Areas in Ontario, 22 are now located in Provincial Parks and Conservation Reserves and protected according to the values for which they were originally selected. And the Agate Island Wilderness Area will be incorporated into the Lake Superior National Marine Conservation Area (see Section 5.2 on page 120). The remaining 10 Wilderness Areas are smaller than 260 ha and therefore qualify for complete protection as well. However, given their size, they do not contain many wilderness characteristics and therefore may qualify as Category III protected areas (Natural Monument).

Guideline E: Is the area intended to protect (a) biodiversity and geological/geomorphological features, or (b) large natural or near-natural areas in which spiritual, scientific, educational and recreational opportunities are provided?

This guideline provides key words from the definitions and objectives of IUCN Category Ia (i.e., 'biodiversity', 'geological', 'geomorphological', 'and 'features'), Category II (i.e., 'large', 'natural', 'science', 'education', and 'recreation'), and Category III (i.e., 'natural' and 'monument').

Guideline F: Are the biodiversity and geological/geomorphological values (a) managed for public appreciation and education, or (b) strictly protected for science, free of human intervention, and permitting only limited public access?

The key words are derived from the IUCN Categories Ia and III definitions and objectives. Ouimet Canyon Provincial Nature Reserve Park, located about 60 km northeast of Thunder Bay, exemplifies the type of area that would qualify as an IUCN Category III protected area. The Nature Reserve is a spectacular steep-walled bedrock canyon inhabited by cold-climate flora characteristic of a post-glacial ecosystem. Most of the park (93%) is comprised of a strictly managed Nature Reserve Zone, while 7% of the area is managed as an Access Zone. A trail and viewing pods on the edge of the canyon encompass a relatively small area. Scientific research by qualified individuals is encouraged if this is consistent with park objectives. All research programs require approval by the Ministry of Natural Resources, are subject to MNR policy, as well as provincial legislation. Permitted activities include picnicking, viewing, nature study, and nature interpretation (MNR, 1975a).

Guideline G: Is species and habitat management the principal focus, especially through active intervention to meet the protection objectives?

This guideline is based on a specific interpretation of the objectives for IUCN Category IV protected areas. If the natural asset manager answers yes to the question, it is likely that the area qualifies as a 'Habitat/Species Management Area'. In Ontario, National Wildlife Areas (Section 5.6 on page 135), some types of Provincial Parks (Section 6.1 on page 148) and Conservation Reserves (Section 6.2 on page 169), and some Provincial Wildlife Management Areas (Section 6.8 on page 232) qualify as IUCN Category IV protected areas.

Guideline H: Is the area noted for its (a) sustainable use of natural products and services, or (b) its distinct character arising from the interaction of people and nature?

At this point in the key, the user determines if the area qualifies as an IUCN Category VI protected area (with the definition that includes "*...where a portion is under sustainable natural resource management...*")

Image by D. Paleczny

or a Category V protected area. The Category V part of the question is comprised of key words from the definition (e.g., interaction of people and nature) and objectives (e.g., a balanced interaction between nature and culture).

The introduction of Categories V and VI protected areas by IUCN acknowledges that strict protection mechanisms (as per Category Ia, Ib, II, III, and IV protected areas) for the entire area are not always suited to achieving *in-situ* conservation in some jurisdictions (Phillips, 1998b). Phillips argues for more effort to protect the natural and cultural qualities of working landscapes as *"places where people live and work, and which are also important for biodiversity conservation and for sustainable livelihoods."* Notwithstanding a general understanding of what these areas are, specific definition and application of Category V and Category VI protected areas has caused confusion in recent years (Bishop et al., 2004; Phillips, 1999).

Officially recognized protected areas in the IUCN classification now include sustainable use areas (IUCN Category VI) where a portion of the protected area can be used for sustainable forms of production, and landscape/seascape protected areas (Category V) where biodiversity is embedded as one element in a working landscape (Dudley et al., 1999a; Dudley, 2008:35). For example, *"Management interventions in Category V protected areas are conversely aimed at sustaining human livelihoods and are not just part of a biodiversity management strategy. A Category V protected area therefore uses cultural management systems that also have value for biodiversity, such as cork oak woodland that is managed primarily for cork but also has important wildlife values if integrated into the landscape approach to conservation"* (Dudley, 2008:35). The key point is that the area must be managed so that the long-term conservation of nature and associated ecosystem services and cultural values is assured. Large commercial activities such as clear cutting, mineral exploration, hydro-electric development, unrestricted tourism, and significant infrastructure projects are not compatible (Dudley et al., 1999b).

The distinction between protected areas and other areas continues to exist, and has been clarified by the WCPA. The *"WCPA believes that large-scale commercial activities such as clearcutting, plantation establishment and other forms of industrial management, unrestrained tourism and other major infrastructure projects are not compatible with any protected area designations"* (Phillips, 1998a). In addition, Dudley (2008:53) states that the following types of managed forests do not automatically qualify as a forest protected area:

- *"Forests managed for resource protection other than biodiversity – e.g., forests set aside for watershed or drinking water protection, avalanche control, firebreaks, windbreaks and erosion control;*
- *Forests managed primarily as a community resource – e.g., forests managed for non-timber forest products, fuelwood and fodder, for recreational or religious purposes;*
- *Forests managed as a strategic resource – e.g., as an emergency supply of timber in times of conflict;*
- *Forests with unclear primary management objectives resulting in biodiversity protection being considered as an equal or lesser priority along with other uses;*
- *Forests set aside by accident – e.g., woodland in the central reservation or verges of motorways, forest maintained for military or security reasons."*

Spatial scale is an important consideration in the classification process. A Category V protected landscape could contain core protected areas (some of which might qualify for classification as other types of IUCN protected area categories) and connecting corridors of vegetation ('greenways') and/or wetlands, streams, rivers, and lakes ('blueways'). With sound management, these areas could provide significant protection to large areas. For example, while Provincial Parks in the Niagara Escarpment Biosphere Reserve qualify as Category II protected areas, the entire Biosphere Reserve has many attributes characteristic of a Category V protected area.

An area may qualify as an IUCN protected area if one or more of the following conditions are met:

- The land has enduring tenure, such as Crown land, perpetual lease, or freehold land, held by a government body, NGO, or incorporated public utility, or public company with the conservation of nature and associated ecosystem services and cultural values as the principal management objective.

- An area of First Nations land subject to a long-term conservation plan or an agreement between an agency or a constituted NGO with responsibility for nature conservation and the relevant First Nation Band Council, and endorsed by the traditional owners. The agreement should provide for alteration to that objective only by mutual consent of both parties and in consultation with the traditional owners. The area must have the principal management objective oriented to the conservation of nature and associated ecosystem services and cultural values.

An area will not qualify if one or more of the following conditions exist:

- The area has transient tenure, such as leasehold land with a lease duration of less than 99 years (see Box 2-4 on page 21 and associated text for 'fully protected' and 'partially protected' area criteria).
- The area is freehold, Crown, or leasehold land held by an individual or private company, which is not subject to a protective covenant on title, or a legal instrument which requires determination by a Minister or Director for planning, the environment, or wildlife through a parliamentary process.
- It is First Nations land not subject to an appropriate long-term conservation plan or agreement.

Guideline I: Is at least 2/3 of the area maintained in a natural condition by the management authority?

The 'two-thirds' rule has been adopted by some countries for Category VI protected areas (Dudley, 2008:22). While the bio-ecological significance of this guideline will likely be reviewed and discussed for some time into the future, it nonetheless represents a quantifiable target that natural asset managers can use to confirm the site as a qualified protected area. Accordingly, if an area does not meet the condition of the 'two-thirds' rule, it would not qualify as a protected area under the auspices of the IUCN classification system.

Does Algonquin Provincial Park qualify for inclusion in the IUCN protected area classification system? The Recreation-Utilization Zone includes aesthetic landscapes on which there is minimum development required to support low-intensity recreational activities and which also provide for sustainable commercial forest management. To the greatest extent possible, the Recreation-Utilization Zone is planned, developed, and managed in accordance with the policies set out for Natural Environment Zones (MNR, 1998a:23). Currently, the zone encompasses 78% of Algonquin where back-country low-intensity recreational activities such as backpacking, canoeing, camping, hiking, horseback riding, dog sledding, and mountain biking are permitted. Commercial logging as well as hunting and trapping opportunities for Aboriginal people are permitted. These activities are integrated with low-intensity recreational uses by separating these activities in both time and place.

Currently, logging is permitted in 73% of the Recreation-Utilization Zone (or 57% of the park). Areas excluded from logging operations include reserves for shorelines, earth/life science and cultural values, water, 'non-productive' forested areas, non-forested areas, and islands. Within the forest management areas where logging and associated infrastructure such as roads and aggregate pits are permitted, activities are modified to protect any additional identified natural asset values. These values are mapped and protected as Forest Management Reserves (see Section 6.12 on page 250). Overall, logging is strictly controlled and confined each year to a number of small areas located throughout the Recreational-Utilization Zone. During the period 1990-1996 for example, an average of 7,500 ha were harvested annually (1% of the park). However, even though logging intensity is low, it is classified as an industrial activity that excludes the Recreational-Utilization Zone from the IUCN protected area classification system.

Locke and Dearden (2005) do not support the retention of Category V and VI protected areas in the classification system. They do, however, recognize that Category V and VI lands can contain important biodiversity values, can serve as buffer zones, and can contribute to the establishment of an interconnected series of Category I-IV protected areas.

There are a number of designations in Ontario that do not qualify for the IUCN classification (e.g., Migratory Bird Sanctuaries, Crown Game Preserves, and Fish Sanctuaries) and yet these types of areas also contribute to the maintenance of biodiversity. The following two guidelines are included to initiate discussion about how we might recognize the contribution of these areas to Ontario's biodiversity.

Guideline J: Although not permanently or specifically dedicated and/or managed through legal or other effective means expressly for the conservation of nature and associated ecosystem services and cultural values, does the area contribute to the overall health of species populations, habitat, or the greater ecosystem in which the area exists?

If the area is not managed in part, directly or indirectly for the maintenance of natural assets, then it does not qualify as a 'partially' protected area and is not considered to be a natural heritage area. In addition, international or national designations such as World Heritage Sites, Biosphere Reserves, Ramsar Convention Sites, and Canadian Heritage Rivers are not protection mechanisms in their own right. Natural heritage areas with such designations are recorded under the appropriate (if any) IUCN management category determined by the domestic commitment to protect these areas.

An area with an international designation that is protected under the auspices of a domestic protection mechanism (e.g., covenant or title) may be assessed as a natural heritage area. An area not incorporated in an existing national, provincial, regional, or local category of natural heritage area, and that does not otherwise meet the definition of a natural heritage area, is not included. Areas that have no enforceable means of management, either legal or other means, are excluded as well (as per Guideline B).

Guideline K: Is the area used or noted primarily for (a) forest management, (b) biodiversity values, (c) recreation, or (d) cultural values?

As determined through the application of the criteria used to establish a protection standard (see Box 2-4 on page 21), many types of areas in Ontario with important and substantial natural values do not qualify for inclusion in the IUCN protected areas classification system. However, according to the protection standard many of these areas are considered 'partially protected' and contribute to the protection and maintenance of biological diversity. For example, in forest management planning Area of Concern prescriptions are used to care for Forest Management Reserves and Crown Protection Forests (see Section 6.12 on page 250) (L. Watkins, personal communication). As a case in point, Areas of Concern include set-backs (habitat) for species of concern, rare, or endangered species, American Marten (*Martes americana*) core areas, and riparian reserves. The design and application of these management reserves is informed by more than 20 provincial government 'best practices' guidelines and published habitat/species guidelines (see Section 6.12). In addition, private landowners make significant contributions to the conservation of biological diversity in Ontario (some of these types of areas are described in Part II).

We assume that some management of natural heritage areas in the 21st century will be completed within the context of ecologically-based, comprehensive land-use planning. This approach recognizes that natural heritage areas with a variety of attributes and qualities will collectively contribute to the overall health of the ecosystem(s) of which they are a part. Therefore, even though some natural heritage areas in Ontario may not qualify as 'fully protected' and for inclusion in the IUCN protected areas classification system, with appropriate management we suggest they do and will continue to play an important role in maintaining biological diversity and contributing to the function of the 'greater ecosystem', or the ecosystem(s) in which they are located. These areas merit identification and recognition.

Ecological viability of a protected area is partly a function of the size required to maintain features (e.g., species) and ecological processes. In addition, these features and processes can be protected through the careful management of adjacent areas that may or may not be formally protected. This is an attractive feature of the 'greater ecosystem' approach to management embraced by agencies such as Ontario Parks and Parks Canada (1994:16). For example, numerous Parks Canada initiatives describe a greater ecosystem approach including the *Ecosystem Conservation Plan* for *Pukaskwa National Park* (Burrows and Keddy, 2004), work described for Georgian Bay Islands National Park (Walton, 1998) and for Fundy National Park (Freedman et al., 1997), and discussed for Point Pelee National Park (Stephenson, 2005). Ontario Parks subscribes to a 'greater ecosystem' approach as well. For example, the *Kakabeka Falls Provincial Park Management Plan* acknowledges the need for a greater ecosystem approach by establishing ecological, social, and economic relationships with surrounding area communities. The plan commits Ontario Parks to participation in land use planning initiatives that affect the greater park ecosystem and to connect the park to other natural areas (MNR 2001a:5). In the management of Sleeping Giant Provincial Park near Thunder Bay, Ontario Parks managers employ a management plan to ensure that decisions will consider the relationship between the park and the surrounding environment (MNR, 2005c). The IUCN guidelines acknowledge the role of adjacent areas in maintaining a protected area's viability.

A classification for 'partially protected' natural heritage areas is introduced on the key (Fig. 3-1). Accordingly, they are not assigned to a formal IUCN Category (Table 3-2). However, protected area models have evolved in the last two decades and a widening range of instruments are now used to influence human behaviour in the interest of conservation (Dudley and Phillips, 2006:27; Intergovernmental Forum on Forests, 1999). For example, there is growing emphasis on networks of protected areas that are linked and managed in the context of the ecosystems in which they are found instead of individual isolated properties (Dudley and Phillips, 2006:27). And protection practices now range from strict protection to multiple-use and integrated management where different institutions partner to sponsor, create, and/or jointly manage natural heritage areas (Neave and Neave, 2005; Nelson, 1993, 1998).

Phillips (1998b) suggests that in theory, protected areas can now encompass areas used for almost everything except industrial-scale activities such as intensive farming and forestry, large scale mining, or large settlement. Accordingly, an important prerequisite is that land uses in protected areas be sustainable and compatible with the primary aims of nature (biodiversity) conservation, ecological management, and cultural protection (Dudley and Phillips, 2006:15; Phillips, 1998b; Stolton and Dudley, 2000).

Image by P.A. Gray

One option involves the introduction of additional classification categories for areas managed for recreation, cultural values, biological diversity, and/or forest management. For example, Dudley et al. (1999a) suggest that there may be merit in developing additional classifications for forest management to be used alongside the IUCN protected area categories to create a continuum of uses from strict protection to intensively managed plantations (Table 3-3). This concept could be applied to areas managed for recreation, culture, and biodiversity as well.

Dudley et al. (1999a) suggest an overall definition of "*an area of forest and associated lands primarily managed for resource protection and sustainable use*" in support of a classification with five categories:

- **A – Managed for Resource Protection**: An area of forest that is protected to provide a range of ecological services such as soil and watershed protection.
- **B – Managed for Community Benefit:** An area of forest and associated lands primarily used to meet community needs such as wood gathering, non-timber forest products, farming, artisanal mining and small settlements, including subsistence needs and small-scale trading.

Table 3-2. A provisional classification of natural heritage areas using the IUCN protected area management categories.

This evaluation is provided as a basis for discussion only. It is anticipated that each agency or organization will complete its own assessment of the natural heritage areas for which it is responsible. It is important to recognize that IUCN category assignment does not denote the ecological condition or health of an area, nor does it denote the management effectiveness applied by agencies, organizations, and landowners.

Area/Mechanism in Ontario	IUCN Protected Area Category							No IUCN Category
	Ia	Ib	II	III	IV	V	VI	
International Biological Programme Site	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Ramsar Convention Sites	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Biosphere Reserves	n/a	n/a	n/a	n/a	n/a	o[1]	n/a	n/a
World Heritage Sites	n/a	n/a	n/a	n/a	n/a	o[1]	n/a	n/a
Important Bird Areas	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
National Parks	o	o	o					
* Preservation Zone	o							
* Wilderness Zone		o						
* Natural Environment Zone			o					
* Outdoor Recreation Zone			o					
* Parks Services Zone								o
National Marine Conservation Areas		o	o					
* Preservation Zone		o						
* Natural Environment Zone			o					
* Conservation Zone								o
National Historic Sites				o				o
Canadian Heritage Rivers	n/a	n/a	n/a	n/a	n/a	o[1]	n/a	n/a
Migratory Bird Sanctuaries								o
National Wildlife Areas	o	o	o	o	o			
Ocean Act Marine Protected Areas			o					
Marine Wildlife Areas			o					
National Capital Commission Lands – Greenbelt						o[2]		
* Core Natural Area	o							
* Natural Area Buffer			o					
* Natural Area Link			o					
* Cultivated Landscape								o
* Rural Landscape								o
* Buildable Site								o
* Infrastructure Corridor								o
Provincial Wilderness Parks		o						
* Wilderness Zone		o						
* Nature Reserve Zone	o							
* Historical Zone				o				
* Access Zone								o
Provincial Nature Reserve Parks	o				o	o		
* Nature Reserve Zone	o							
* Historical Zone				o				
* Access Zone								o
Provincial Waterway Parks			o					
* Natural Environment Zone			o					
* Development Zone								o
* Wilderness Zone		o						

Continued on page 71

Area/Mechanism in Ontario	IUCN Protected Area Category							No IUCN Category
	Ia	Ib	II	III	IV	V	VI	
* Nature Reserve Zone	o							
* Historical Zone				o				
* Access Zone								o
Provincial Natural Environment Parks			o		o			
* Natural Environment Zone			o					
* Development Zone								o
* Wilderness Zone		o						
* Nature Reserve Zone	o							
* Historical Zone				o				
* Access Zone								o
* Recreation-Utilization Zone (Algonquin)								o
Provincial Cultural Heritage Parks			o	o	o			
* Natural Environment Zone			o					
* Development Zone								o
* Nature Reserve Zone	o							
* Historical Zone				o				
* Access Zone								o
Provincial Recreation Parks			o		o			
* Natural Environment Zone			o					
* Development Zone								o
* Nature Reserve Zone	o							
* Historical Zone				o				
* Access Zone								o
Conservation Reserves	o	o	o	o	o	o		
Wilderness Areas				o				
Forest Reserves								o
Enhanced Management Area-Natural Heritage								o
Enhanced Management Area-Remote Access								o
Enhanced Management Area-Great Lake Coastal Area								o
Enhanced Management Area-Fish and Wildlife								o
Enhanced Management Area-Recreation								o
Enhanced Management Area-Resource-based Tourism								o
Enhanced Management Area-Intensive Forestry								o
Provincially Significant Wetlands	o			o	o			o
Areas of Natural and Scientific Interest	o			o				o
* Strictly Protected Core Zone	o			o				o
* Managed Core Zone	o			o				o
* Buffer Zone				o				o
* Resource Management Zone				o				o
* Access Zone								o
Wildlife Management Areas					o	o		o
Crown Game Preserves								o
Fish Sanctuaries								o
Niagara Parks System				o	o			o
Parks of the St. Lawrence	o		o	o	o			o
Conservation Authority Properties						o^2		
* Great Lakes shorelines, wetlands, ANSIs, Niagara Escarpment Lands, Oak Ridges Moraine	o		o	o	o			o
* Natural Hazard, Natural Heritage, Cultural, Trails, Forest, Recreation					o			o
* Offices/workshops								o
Forest Management Reserves								o
Restricted Access Areas								o

Continued on page 72

Area/Mechanism in Ontario	IUCN Protected Area Category							No IUCN Category
	Ia	Ib	II	III	IV	V	VI	
Niagara Escarpment						o[2]		
* Escarpment Natural Area	o			o				
* Escarpment Protection Area								o
* Minor Urban Centre								o
* Urban Area								o
* Escarpment Rural Area								o
* Escarpment Recreation Area								o
* Mineral Resource Extraction Area								o
Niagara Escarpment Parks and Open Space System	o		o	o				
* Nature Reserve	o							
* Natural Environment			o		o			o
* Recreation			o					o
* Historical				o				
* Escarpment Access								o
* Resource Management								o
* National Parks			o					
* St. Lawrence Seaway								o
Oak Ridges Moraine						o[2]		
* Natural Core Areas	o		o	o	o			
* Natural Linkage Areas	o		o	o	o			
* Countryside Areas								o
* Settlement Areas								o
The Greenbelt	o		o	o	o	o[2]		o
The Lake Simcoe Watershed	o		o	o	o	o[2]		o
Municipal Parks & Open Space	o		o	o	o			o
Natural Heritage Features in Urban and Rural Areas	o			o	o			
* Wetlands	o							
* Area of Natural and Scientific Interest (ANSI)	o			o				
* Valleylands	o							
* Wildlife Habitat	o				o			
* Endangered & Threatened Species Habitat	o							
* Woodlands	o							
* Fish Habitat	o							
Rouge Park			o					
* Nature Reserve Zone	o			o				
* Natural Area Zone	o			o				
* Restoration Zone	o		o	o	o			
* Special Management					o			
* Access Zone								o
* Agricultural Heritage Zone					o			
Eastern Habitat Joint Venture Programs					o			
Nature Conservancy of Canada – Nature Preserves	o				o			
Ontario Nature – Nature Reserves	o				o			
Bruce Trail Association Properties			o	o				o
Carolinian Canada Sites	o			o	o			
* Signature Sites	o			o	o			o
* Core Habitats	o			o	o			o
Provincial Tax Incentive Programs – Conservation Land Tax Incentive Program Sites								o
Provincial Tax Incentive Programs – Managed Forest Tax Incentive Program Sites								o
Ontario Heritage Trust Properties	o			o	o			o
Conservation Easements	o			o	o			o
Land Trusts	o			o	o			o

o = Classification to IUCN categories applies when areas are specifically dedicated to, and managed for, biodiversity protection (this may vary on a case by case basis)

[1] It is possible that the domestic protection mechanism(s) used to care for Biosphere Reserves (e.g., the Niagara Escarpment), World Heritage Sites (e.g., the Rideau Canal), and Canadian Heritage Rivers (e.g., the Grand River) could qualify these designations as IUCN Category V protected areas.

[2] Category V: The overall intent for the management of these areas as described in legislation and policy (e.g., *the Oak Ridges Moraine Act*) is consistent with the criteria/standards developed for Category V protected areas by the IUCN and affiliated organizations (see Dudley, 2008 and Phillips, 2002). However, these natural heritage areas do not meet the 75% rule recommended by IUCN (i.e. the primary objective of nature conservation should apply to 75% of the protected area; Dudley 2008:35). Should agencies ignore the three quarters rule, or should it be used as a state or condition to which agencies and organizations might aspire? Given that the 75% rule is not formally prescriptive, and given that Category V criteria do recognize a holistic, ecologically oriented approach to management (including important terrestrial 'greenway' and aquatic 'blueway' linkages over large areas), there may be merit in recognizing these areas as Category V protected areas.

Image by D. Paleczny

Table 3-3. The relationship of proposed Forest Management Areas to IUCN protected area categories I-VI.

Disturbance	Protected Area Category	Forest Management Category
Natural	I	
↓	II/III	
	VI	
	IV	C
		A
	V	
		B
		D
Modified		E

Source: Dudley et al. (1999a).

- **C – Reserved for Future Use:** A forested area that is reserved for potential future use.
- **D – Managed for Multiple Use:** A landscape area usually including forests, agricultural land, and settlements that is sustainably managed for a range of community and industrial uses.
- **E – Managed for Industrial and Intensive Forestry:** An area of forest managed primarily for sustainable resource production such as timber, non-timber forest products, agricultural products, and energy.

Table 3-4 and Fig. 3-2 describe the range of uses and actions that potentially could occur in the proposed forest designations and illustrate an approximate transition from strict protection (as outlined in IUCN Categories I-VI) to forest management categories. In some cases, the IUCN Categories I-VI and the forest management categories overlap along a continuum. For example, some forest management sites require the same level of 'naturalness' as IUCN protected areas (Dudley et al., 1999a). It is interesting to note, and certainly indicative of the times in which we live, that even Category E does not provide *carte blanche* permission for uncontrolled exploitation. Rather, Category E requires intensive forest use be conducted within acceptable social and environmental parameters.

More recently, Dudley and Phillips (2006:27) provided a descriptive list of 'conserved forests', many of which would qualify as 'partially protected' areas in the system proposed in this report. These areas include forests managed to maintain soil and water resources, forests managed for community purposes, strategic reserves, multiple purpose forests, recreational forests and woodlands, spiritual forests and woodlands, small woodlands for use in the farming system, woodland managed for sport hunting, forests conserved by accident, ornamental gardens and arboreta, and military reserves. Further consideration is required to identify definitions, objectives, selection criteria, and management programs for the variety of 'partially protected' forest management areas, recreational areas, biodiversity areas, and cultural areas.

Image by M. Wester

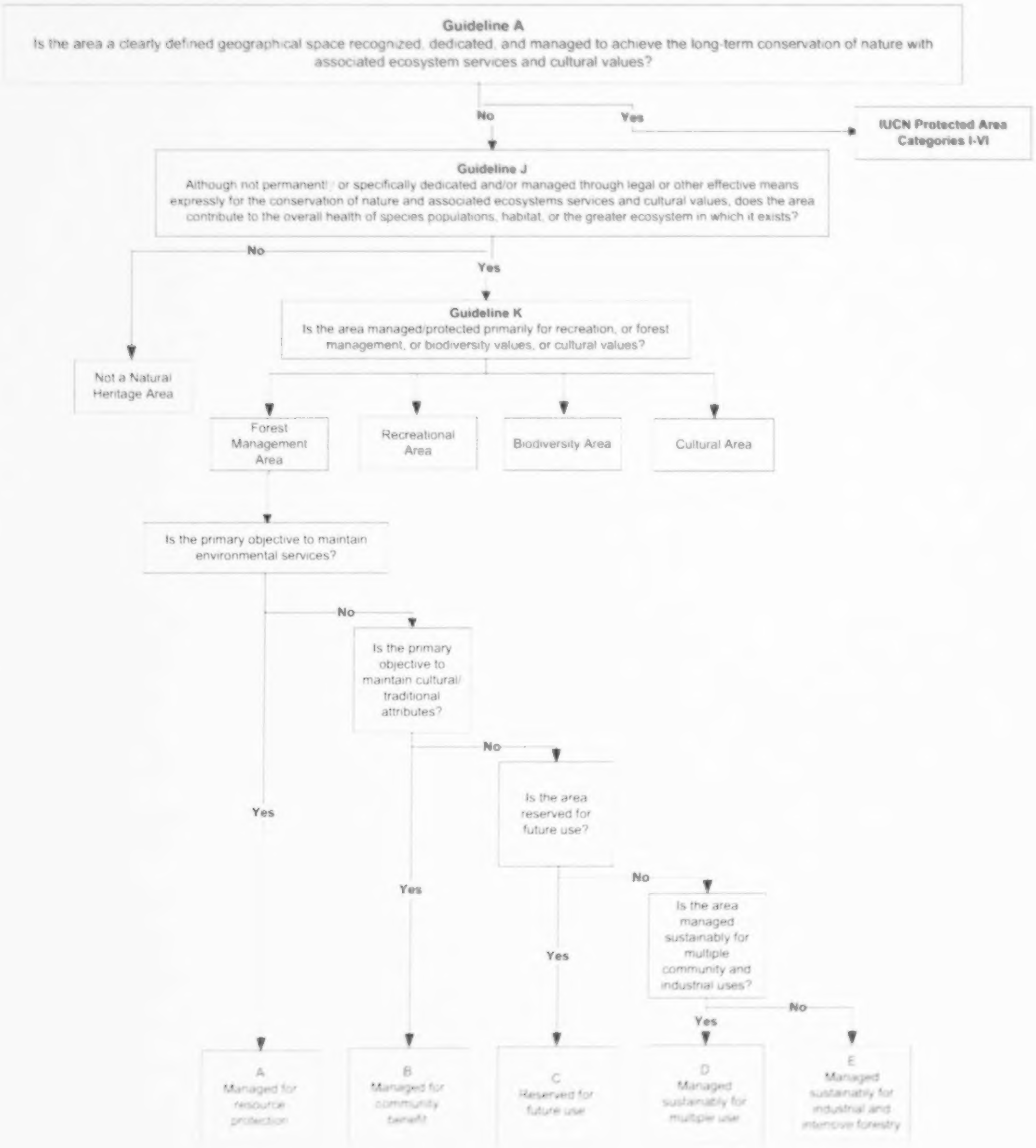
Image by L.S. Withers

Table 3-4. Objectives of the forest management categories proposed by Dudley et al. (1999a).

Objectives	Forest Management Categories					IUCN Protected Area Management Ctegories						
	A	B	C	D	E	Ia	Ib	II	III	IV	V	VI
Scientific research	n/a	3	2	3	n/a	1	3	2	2	2	2	3
Wilderness protection	n/a	n/a	2	n/a	n/a	2	1	2	3	3	n/a	n/a
Preserve species and genetic diversity	3	2	2	3	3	1	2	1	1	1	2	1
Maintain environmental services	1	2	2	2	3	2	1	1	n/a	1	2	1
Protection of natural/cultural features	3	2	3	3	3	n/a	n/a	2	1	3	1	3
Tourism and recreation	3	3	3	2	n/a	n/a	2	1	1	3	1	3
Education	n/a	3	n/a	3	n/a	n/a	n/a	2	2	2	2	3
Sustainable use of natural ecosystems	2	2	2	3	n/a	n/a	3	3	n/a	2	2	1
Maintain cultural/traditional attributes	3	1	3	2	n/a	n/a	n/a	n/a	n/a	n/a	1	2
Subsistence/local scale	3	1	2	1	n/a	n/a	n/a	n/a	n/a	3	2	1
Long-term resource protection	2	3	1	3	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2
Commercial/industrial	n/a	n/a	n/a	2	1	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Infrastructure/transport	n/a	2	3	2	2	n/a	n/a	n/c	n/a	n/a	3	3
Defence	3	n/a	3	2	n/a	n/a	n/a	n/a	n/a	n/a	3	n/a

1 - Primary objectives; 2 - Secondary objectives; 3 - Tertiary objectives; and n/a - Not applicable (IUCN, 1994)

Figure 3-2. A proposed 'partially protected' area classification system using the forest management categories developed by Dudley et al., (1999a) to illustrate the potential spectrum of area types.


Guideline A
Is the area a clearly defined geographical space recognized, dedicated, and managed to achieve the long-term conservation of nature with associated ecosystem services and cultural values?
No
Yes
IUCN Protected Area Categories I-VI
Guideline J
Although not permanently or specifically dedicated and/or managed through legal or other effective means expressly for the conservation of nature and associated ecosystems services and cultural values, does the area contribute to the overall health of species populations, habitat, or the greater ecosystem in which it exists?
No
Yes
Guideline K
Is the area managed/protected primarily for recreation, or forest management, or biodiversity values, or cultural values?
Not a Natural Heritage Area
Forest Management Area
Recreational Area
Biodiversity Area
Cultural Area
Is the primary objective to maintain environmental services?
No
Is the primary objective to maintain cultural/ traditional attributes?
No
Is the area reserved for future use?
No
Is the area managed sustainably for multiple community and industrial uses?
No
Yes
Yes
Yes
Yes
A Managed for resource protection
B Managed for community benefit
C Reserved for future use
D Managed sustainably for multiple use
E Managed sustainably for industrial and intensive forestry

Towards Connectedness

The concept of linking protected areas into a network as a way to help keep the ecosphere connected and functioning has been described and researched for decades. A principal idea behind a network is that ecological features and processes can be maintained through the careful management of natural heritage areas and the space between them on the intervening landscapes and waterscapes (for an interesting review of the history of planning conservation corridors on the Oak Ridges Moraine, see Whitelaw and Eagles [2007]). This idea has roots in the Man and Biosphere (MAB) Program (Canada/MAB, 1987:1; Hawksworth, 1995:553. Taschereau, 1985); in the 'greater ecosystem approach to management described by Parks Canada (e.g., Burrows and Keddy, 2004; Freedman et al., 1997; Parks Canada, 1994:16; Stephenson, 2005; Walton, 1998), Ontario Parks (e.g., MNR, 2005c), and for the Lake Simcoe Watershed (MOE, MNR, and the LSRCA, 2009.7); the ecoregional programs developed and/or adopted by The Nature Conservancy of Canada and the World Wildlife Fund, the biological corridor model used by Conservation International and the Wildlife Conservation Society's *'Living Landscapes'* program (Bishop et al., 2004:100), the *'Web of Conservation Lands'* concept evaluated by Natural Resources Canada (McAfee and Malouin, 2005), and more recently in Bill 191 (An Act with respect to land use planning and protection in the Far North) (Government of Ontario, 2009). A long term objective of the *'Big Picture'* project is to expand conservation planning beyond the existing islands of green and to reverse the impacts of fragmentation in southwestern Ontario (Gordon, 1999; Jalava et al., 2001, 2002, in preparation). And comprehensive assessments for some ecosystems have been completed. For example, in support of the 'Big Picture' project and other initiatives, Henson et al. (2005:viii) completed a *Great Lakes Conservation Blueprint for Terrestrial Biodiversity* in order to catalogue, classify, map, and analyze biological diversity data and information.

Image by M. Wester

'Greenway' and 'blueway' networks will be an essential part of Ontario's response to the impacts of global warming (Expert Panel on Climate Change Adaption, 2009; Lemieux et al., 2007; Lemieux, 2008; Varrin et al., 2007). For example, linkages are important to migrating species, the exchange of genetic material, and for the provision of food, water, and shelter during periods of natural scarcity, significant disturbances (e.g., large fires), or disruption by human activities. Linkages can be forested corridors, riparian areas, rivers and lakes, or other habitats that connect natural areas, such as many the areas protected in the Greenbelt (Fig. 3-3).

Wherever possible, linkages must be carefully planned and managed to optimize positive ecological values and avoid or minimize negative impacts associated with, for example, the spread of unwanted exotic invasive species. And while the advantages of establishing a corridor or linkage far outweigh the risks, all ecological forces and factors require assessment where possible. In addition, 'functional' connectivity can be highly specific to species and ecosystems and in some instances the design may not work for all species (Noss, no date). For example, a corridor configured to functionally link habitat patches of one species may work as a functional barrier to another species.

A variety of natural corridor and natural network management techniques have been described and/or tested in the last four decades (e.g., Goodwin, 2003; Noss, 1995; Riley and Mohr, 1994). Crins (2005) suggests that a protected areas network

Figure 3-3 The Greenbelt: A schematic showing natural system connections among the Protected Countryside, Niagara Escarpment, and Oak Ridges Moraine (MMAH, 2005a).

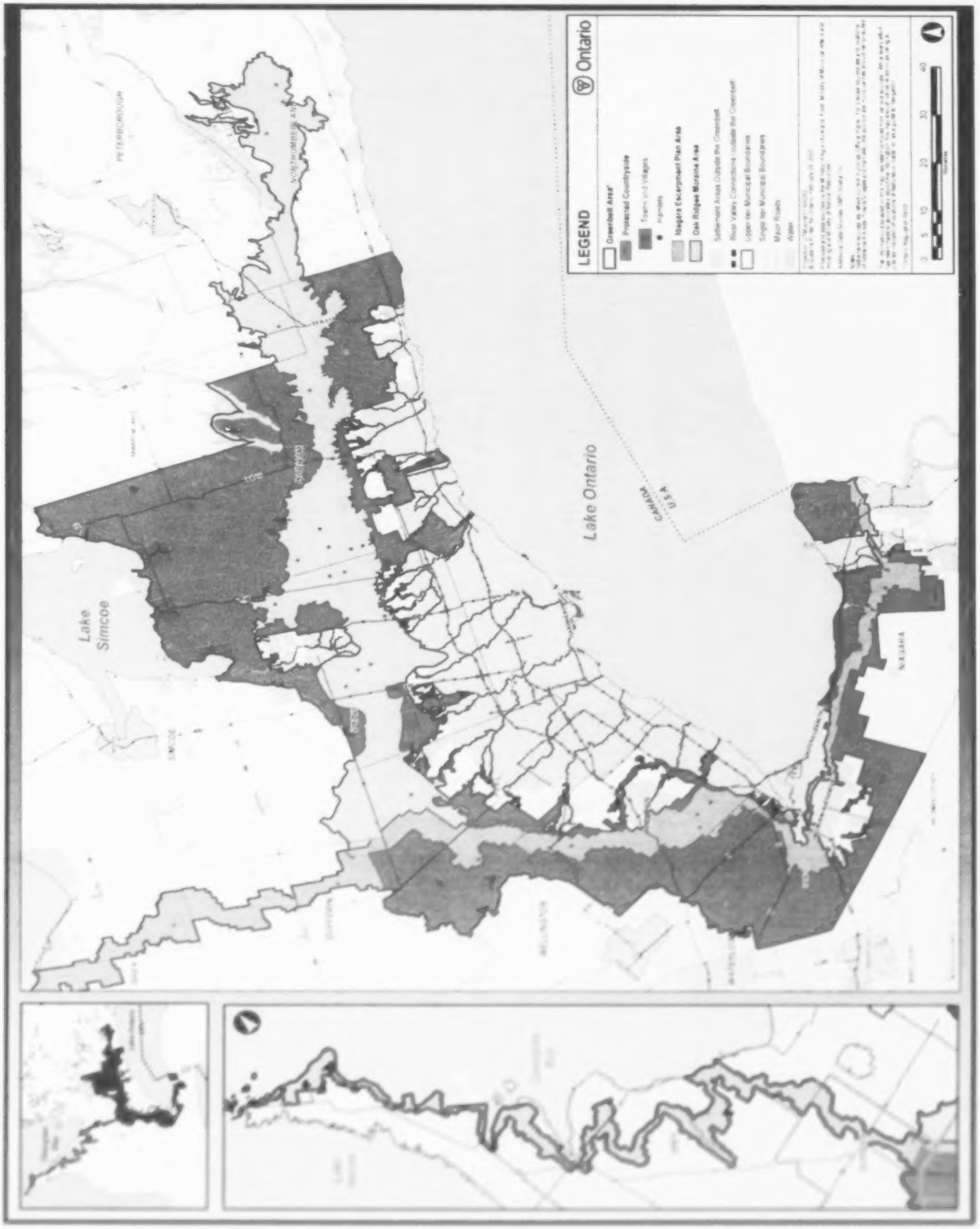
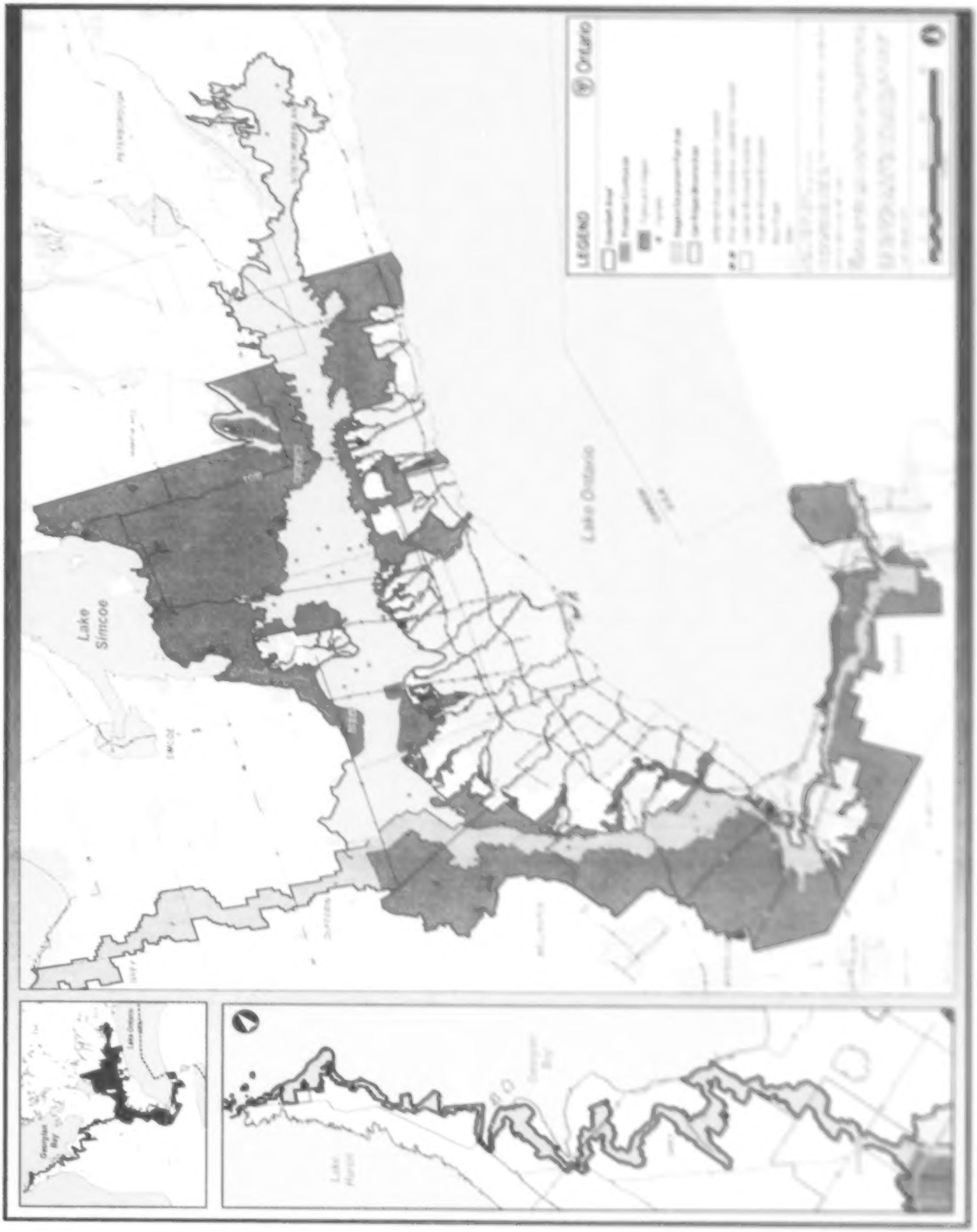


Figure 3-3 The Greenbelt: A schematic showing natural system connections among the Protected Countryside, Niagara Escarpment, and Oak Ridges Moraine (MMAH, 2005a).



needs to work at multiple scales (e.g., large to small ecosystems and species to populations), be connected, and be functional with ecological integrity (i.e., where biotic and abiotic components of ecosystems and the composition and abundance of native species and biological communities are characteristic of their natural regions and rates of change and ecosystem processes are unimpaired [Statutes of Ontario, 2006]). Beechey et al. (2000) highlighted the importance of ecological integrity and network design as key ingredients for conserving natural heritage areas in southern Ontario, and Wiersma et al. (2005) promote the application of large protected areas and area networks to achieve ecological integrity for the conservation of mammals and other species at multiple scales across northern Canada.

Taken together, the full range of protected areas and other natural heritage areas described in this report provide the foundation for a network of sites across Ontario. And in addition to the examples cited above, the goals and objectives of the *Niagara Escarpment Plan* (NEC, 2005), the *Oak Ridges Moraine Conservation Plan* (MMAH, 2002), the *Greenbelt Plan* (MMAH, 2005b), the *Lake Simcoe Protection Plan* (MOE, MNR, and the LSRCA, 2009), the Great Lakes Heritage Coast (see MNR, 1999a; Wiersma et al. 2005), and various municipal official plans exemplify landscape-level initiatives designed to keep ecosystems functioning and healthy.

Part II

Ontario's Natural Heritage Areas: Description and Management

Ontario's natural heritage areas often have multiple designations, which complicate any enumeration of the total land and water area assigned protection status. This overlay or stacking of multiple categories would require an accurate rule-based GIS assessment in any effort to calculate the total area that is 'partially protected' or 'fully protected'. This report does not provide such an analysis.

4. International Designations and Mechanisms

Introduction

Canada is signatory to a number of international treaties and conventions, including the 1971 Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar), the 1972 Convention Concerning the Protection of the World Cultural and Natural Heritage (Paris), the 1973 Convention on International Trade in Endangered Species of Wild Fauna and Flora (Washington), and the 1992 Convention on Biological Diversity (Rio de Janeiro).

Participation in these and others international programs can result in the designation of special, qualified sites. International designations relevant in Ontario include:

- International Biological Programme Sites.
- Ramsar Convention Sites.
- Biosphere Reserves.
- World Heritage Sites.
- Important Bird Areas.

4.1 International Biological Programme Sites

Introduction

The International Biological Programme (IBP) was a 10-year initiative (1964-1974) sponsored by the International Council of Scientific Unions that entailed *"a worldwide plan of research concerned with the biological basis of productivity and human welfare"* (Clapham, 1980; Worthington, 1968 in Nicholson, 1968:1). The IBP was divided into seven areas of enquiry and research, including the Conservation of Terrestrial Communities Section (CT) (Box 4-1), which dealt with the inventory and assessment of natural areas for conservation purposes. As such, the International Biological Programme was a forerunner to current conservation initiatives, which recognized the important contribution that protected areas made toward achieving ecological sustainability and biodiversity conservation (Box 4-2). The CT component of IBP (IBP/CT) was staged in cooperation with the International Commission on National Parks of the International Union for the Conservation of Nature (IUCN) and involved 55 countries (including 155 administrative areas such as provinces and states) (Clapham, 1980).

Box 4-1. Program sections of the International Biological Programme.

- **Production Processes (PP)**
- **Production of Freshwater Communities (PF)**
- **Production of Marine Communities (PM)**
- **Production of Terrestrial Communities (PT)**
- **Use and Management of Biological Resources (UM)**
- **Conservation of Terrestrial Communities (CT)**
- **Human Adaptability (HA)**

The aim of IBP/CT was to compile standardized inventories and assessments to determine the extent to which world ecosystems were epresented and conserved in protected areas, and to describe new sites that should be included in regional and global networks of protected areas.

Ontario participated in the IBP/CT survey from 1968-1974 as one of 10 Canadian panels (Box 4-3). Ontario's involvement issued from its mandate for Provincial Parks and other conservation areas together with Canada's lead as a participating nation. The Canadian effort was guided by a national committee comprised mainly of university researchers and chaired by Dr. W.A. Fuller (Department of Zoology, University of Alberta). The national IBP/CT Committee provided overall direction and support to the regional panels with funding provided by the National Research Council of Canada (Fuller, 1975).The Ontario program was administered by a provincial committee that was co-chaired by Dr. J. Bruce Falls (Department of Zoology, University of Toronto) and G. Angus Hills (Soil Scientist, Division of Research, Ontario Department of Lands and Forests). The Parks Branch, Department of Lands and Forests (now the Ministry of Natural Resources), was a key participant in the Ontario IBP/CT effort since its objectives were so closely aligned with those of the International Biological Programme. The work of the Ontario IBP/CT Committee centred on several aspects: overall coordination with the national IBP/CT Committee, interpretation and application of the IBP/CT protocols and survey methods, guidance on the completion of the IBP surveys and reports, assessment of IBP Sites, and collaboration with governmental agencies to promote and to encourage the conservation of IBP Sites.

Box 4-2. Rationale for protecting natural areas.

- **Maintain large, heterogeneous gene pools to conserve biodiversity.**
- **Perpetuate samples of the full range of biodiversity for research.**
- **Establish benchmarks to assess environmental management activities.**
- **Serve as outdoor museums for nature study and appreciation.**
- **Provide opportunities for education and understanding nature.**

Source: Nicholson (1968).

Box 4-3. Regional panels of the IBP/CT survey in Canada.

1. **British Columbia**
2. **Alberta**
3. **Saskatchewan**
4. **Manitoba**
5. **Ontario**
6. **Quebec**
7. **Maritimes**
8. **Newfoundland and Labrador**
9. **Arctic**
10. **Subarctic**

Source: Fuller (1975).

Legislation and Policy Basis

Since International Biological Programme Sites have no inherent protection status, the conservation of a specific site is reliant on protection measures afforded to it by cooperating jurisdictions. Accordingly, the Ontario IBP/CT Committee worked closely with governmental agencies to encourage the protection of International Biological Programme Sites located in Provincial Parks and other types of protected areas, and to encourage provincial and regional efforts to conserve unprotected sites. Early on, some sites were protected in Wilderness Areas, Nature Reserve Parks, and Natural Zones (a classification used by the Parks Branch, 1967) (subsequently as Nature Reserve Zones under the 1978 Provincial Parks Policy) in other classes of Provincial Parks, while other sites were protected in Conservation Areas managed by Conservation Authorities. Many Provincial Parks and Areas of Natural and Scientific Interest identified through MNR District Land Use Plans in the 1980s were designed to incorporate IBP Sites. In addition, a number of sites have been protected through securement initiatives of The Nature Conservancy of Canada and other private organizations working in concert with provincial and regional interests. And as recently as 2001, International Biological Programme Sites were added to Ontario's system of Provincial Parks and Conservation Reserves under the auspices of the Ontario Living Legacy Land Use Strategy (MNR, 1999a).

The Ontario IBP/CT work helped define and strengthen protection policies for Provincial Parks, and provided a list of candidate sites that have been used for various environmental assessment and land-use planning initiatives, including the *Niagara Escarpment Plan* and regional official policy plans prepared under the *Planning Act*. Today, International Biological Programme Sites are represented within most of the protected categories covered in this report. As the first methodical assessment of natural areas in Ontario, the IBP survey remains an important information source for various environmental interests involved in identifying natural areas for conservation.

Protection Goal and/or Objectives

Overall, the goal of IBP/CT was to conduct a worldwide inventory and assessment on the status of ecosystem representation in protected areas. The aim of this inventory was to establish which ecosystems were adequately represented within existing protected areas, and which ecosystems still needed to be protected in order to fully represent world ecosystem types. Standardized protocols for characterizing and documenting IBP Sites included the adoption of a classification of world vegetation types (Fosberg, 1970) and the utilization of a standardized survey check-sheet (Peterken, 1970) to furnish an objective assessment of protected areas that could guide future conservation efforts (Box 4-4). The survey also helped to document research needs in various ecosystem types and protected areas, and it provided a catalogue of areas that could assist with setting future research priorities. From a protection standpoint, proponents advocated a high level of protection for International Biological Programme Sites to conserve biological diversity and to retain natural areas for scientific research and education. At an international level, this ideal emerged from the early alignment of the IBP effort with the IUCN movement on National Parks and Equivalent Reserves. This perspective was widely adopted in Canada, where a number of regional IBP associates, beginning with advocates in British Columbia, promoted the establishment of specific legislation for 'Ecological Reserves' as the preferred means to protect International Biological Programme Sites for conservation, scientific research, and education (Franson, 1972, 1975; McLaren and Petersen, 1975). The British Columbia *Ecological Reserves Act* of 1971 was used as a model and by 1985 all provinces except Ontario and PEI had developed specific legislation for Ecological Reserves (Taschereau, 1985). Ontario elected to protect IBP Sites within Nature Reserve Parks, Nature Reserve Zones in other types of Provincial Parks, and various other conservation designations. However, the recent passage of the new *Provincial Parks and Conservation Reserves Act* now provides for protection policies that are comparable to the initial goal and objectives of IBP/CT and legislation for Ecological Reserves in other provinces.

Box 4-4. Contents of the IBP/CT check sheet for Ontario.

- **Site location, jurisdiction, and conservation status.**
- **Geology, physiography, soil, and aquatic attributes.**
- **Summary of vegetation and plant communities.**
- **Typical and special floristic and faunistic features.**
- **Supplementary ecological site assessment.**
- **Site boundary and aerial photo vegetation mapping.**
- **Concise essay of the site ecology and communities.**
- **Date and surveyor(s) sign-off.**

Selection Criteria

In Ontario, IBP Sites were identified using criteria established by the International Biological Programme to complete a global list of protected and unprotected sites:

(a) *"Areas should, taken together, contain adequate and manageable examples of the entire range of major ecological formations or ecosystems in the world and illustrate the range of variation within each.*

(b) *The Series should include sites which, although they do not qualify for inclusion under the first criterion, support species of plants and animals of outstanding interest or great rarity.*

(c) *The series should include sites which are of scientific interest because of the human management to which they have been subjected, even if this has in some cases led to more or less far-reaching modification of the biota.*

Image by D. Paleczny

(d) *The Series should include sites which are important because they have been the scene of detailed and well-documented research.*

(e) *The Series should include sites which contain for example, deposits of peat, lignite or sediment from which information may be obtained about past vegetation and climatic changes, and also sites of special palaeontological importance.*

(f) *The Series should include sites which are of special physiographic or geomorphological interest and which represent unusual habitats"* (Nicholson, 1968:17).

Working within this context, the Ontario IBP/CT Committee adopted Hills' system of Site Regions (now called Ecoregions) and Site Districts (now called Ecodistricts) (Hills, 1959a, 1959b, 1968) as the ecological framework for selecting and assessing International Biological Programme Sites (Figs. 4-1 and 4-2). In addition to utilizing the survey protocols and the standard IBP check-sheet for documenting areas, a supplementary form was developed to describe the physiographic characteristics and site conditions within surveyed areas (Box 4-4). The Ontario survey also added the requirement for the mapping of plant communities on an aerial photo base map and a descriptive essay that summarized the physiographic nature, plant communities, and any special biotic features of each site. Candidate areas were selected through knowledgeable contacts, published sources, and the interpretation of maps and aerial photographs.

Final site selections and documentation were then based on field surveys conducted by field biologists engaged to complete this work. Over the course of the survey, parks personnel took charge of conducting IBP surveys in Provincial Parks and on the Bruce Peninsula, while IBP personnel concentrated their efforts on sites outside of parks. Although initial survey work was concentrated in southern Ontario, efforts were made to include sites across northern Ontario within constraints imposed by funding, available expertise, and accessibility. Altogether, more than 600 areas were surveyed and documented in Ontario, 547 of which were reported in the 3rd and final edition of the Canadian National Directory of IBP Areas (La Roi et al., 1979) marking the highest output for the 10 IBP/CT panels across Canada.

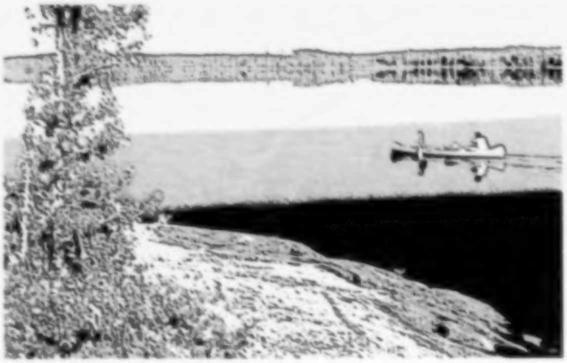
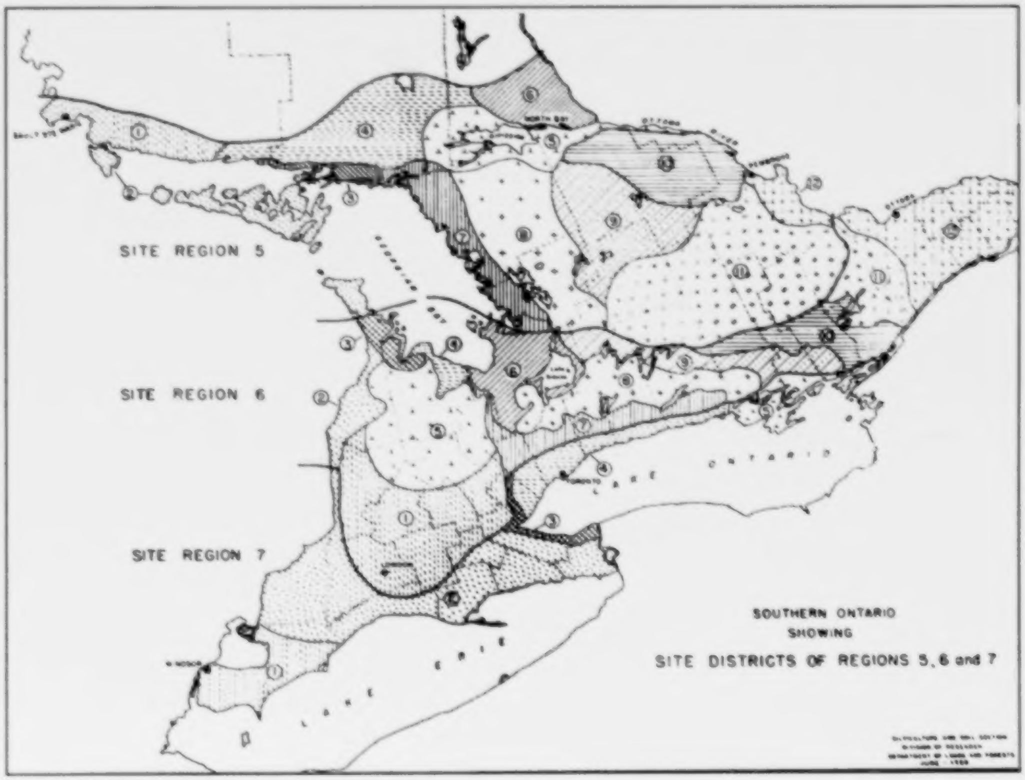


Image by P. Kor

Figure 4-1. The Site Regions and Site Districts of southern Ontario prepared by A. Hills (note that modifications to this map are shown in Fig. 1-1 and are used in Figs. 4-3 to 4-5).



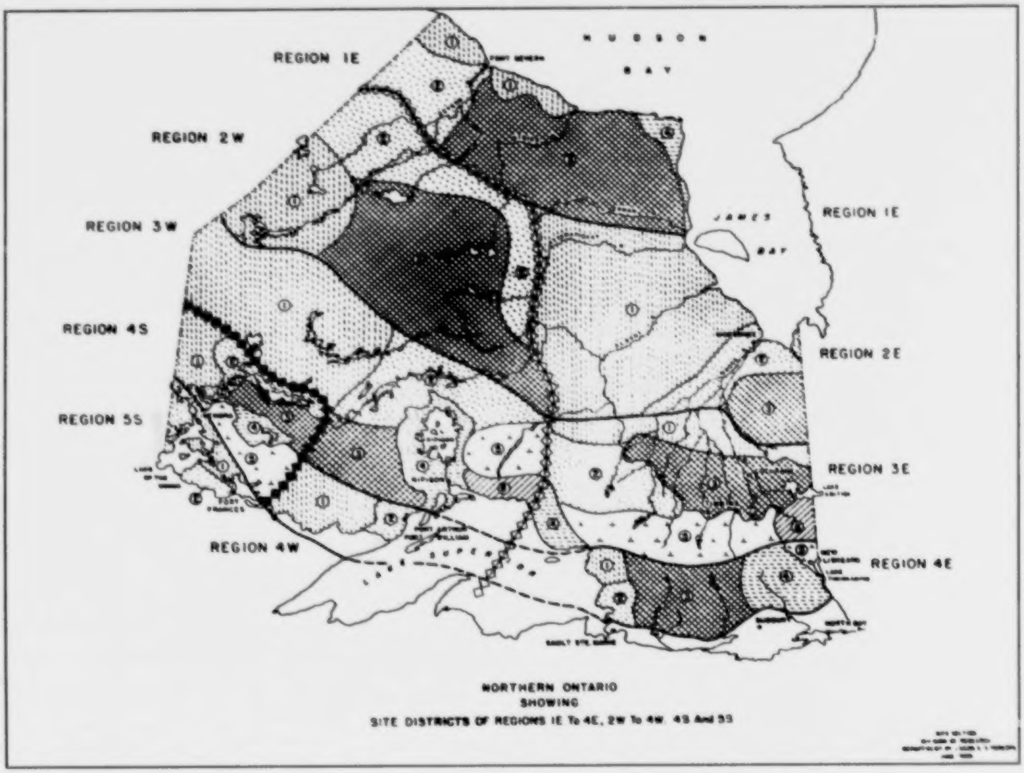
Box 4-5. The Legacy of IBP/CT in Ontario.

- First methodological natural areas survey in Ontario.
- Established philosophy and rationale for protected areas.
- Helped to shape protection, planning, and management policies.
- Introduced a systematic, conservation science-based approach.
- Guided the way for Ontario's participation in succeeding forums, notably ACER (1975-1980) and the Canadian Council on Ecological Areas (1981 to present).

Management Objectives and/or Guidelines

The protection and management of an International Biological Programme Site is highly variable depending on the legislation and policies governing the category(ies) of the protected area(s) in which it occurs. For example, IBP Sites in the Provincial Parks system are primarily located in Nature Reserve Parks and Nature Reserve Zones in other park classes. Accordingly, management is guided by park policies specifically established for these types of parks and zones (see Section 6.1 see page 148). By comparison, an IBP Site located within a Provincially Significant Wetland or an Area of Natural and Scientific Interest is managed under the auspices of the *Provincial Policy Statement* issued under Section 3 of the *Planning*

Figure 4-2. The Site Regions and Site Districts of northern Ontario prepared by A. Hills (note that modifications to this map are shown in Fig. 1-1 and are used in Fig. 4-5).



Act (see Section 6.6 on page 192 and Section 6.7 on page 211). While Section 3 policy designations may constrain development in an area, they do not provide the capability for ecological management such as that afforded to sites within Provincial Parks.

The Degree of Protection for International Biological Programme Sites and the Corresponding IUCN Protected Area Management Strategy: A Preliminary Assessment

Since International Biological Programme Sites are protected to varying degrees, depending on the regulatory control and protective policies of overlay designations, the series of Ontario IBP sites extends across the spectrum of IUCN categories. For example, an IBP Site located within a Nature Reserve Park is 'fully protected' and qualifies for inclusion in the IUCN protected areas classification system as a Category Ia protected area. Sites included in other classes of Provincial Parks, Conservation Reserves, and some other formally established categories of protected areas also place in the IUCN classification. Conversely, IBP Sites covered only by less rigidly protected designations, such as some Areas of Natural and Scientific Interest, are regarded as 'partially' protected and fall outside the IUCN classification.

On balance, Ontario's participation in the IBP/CT survey had an important influence in shaping subsequent efforts on conserving natural areas and designing Provincial Parks, Conservation Reserves, and other protected areas (Box 4-5). Collaboration among the IBP/CT panel, the Minister's Advisory Committee on Nature Reserves (1970-1972) and parks personnel helped to establish the basic protection

Image by D. Paleczny

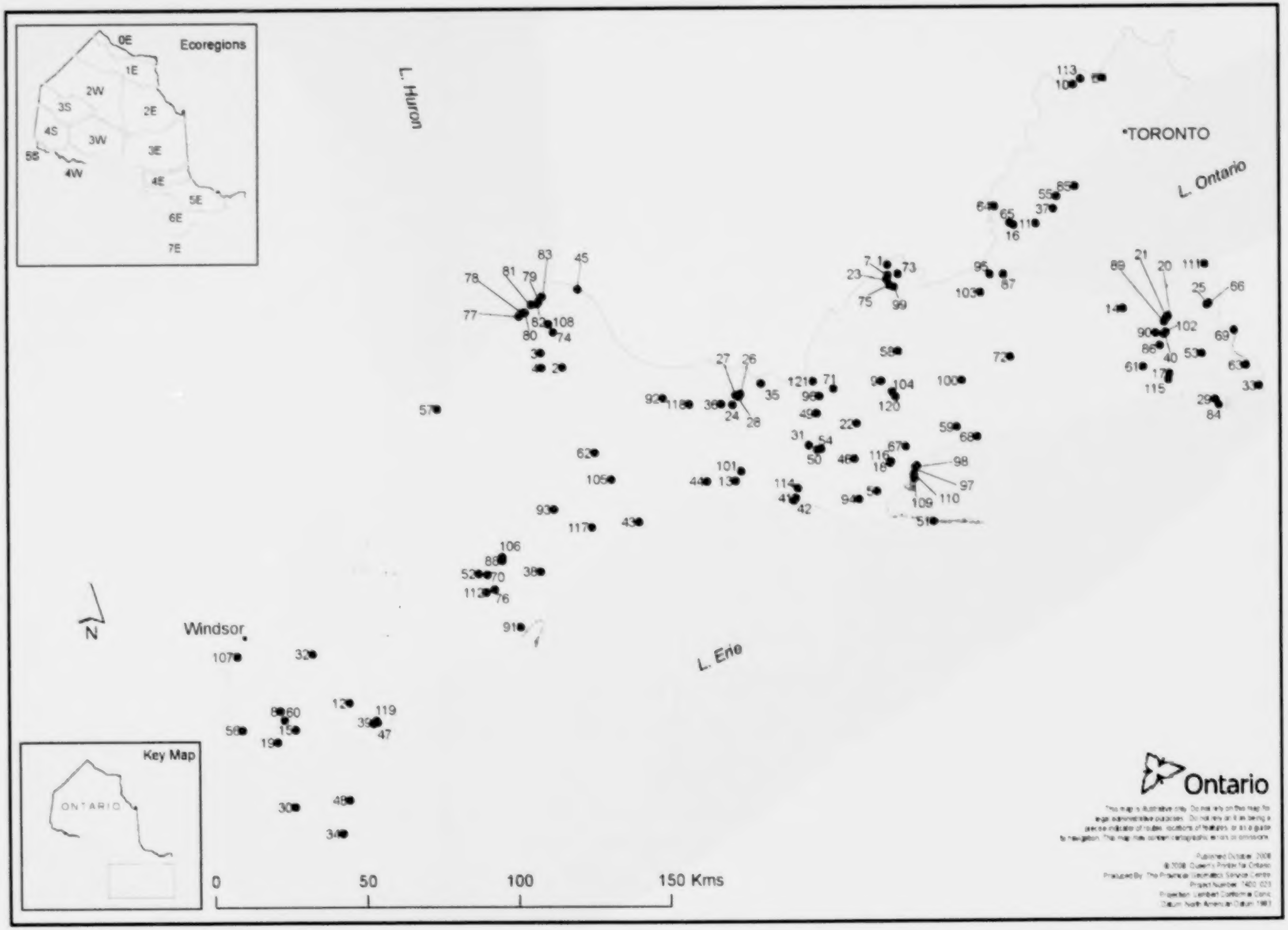
philosophy and principles underpinning current policies and programs. Ontario's participation in the Associate Committee on Ecological Reserves (ACER) from 1975-1980 and the Canadian Council on Ecological Areas (CCEA) from 1982 to present, both spawned by the International Biological Programme, have kept Ontario engaged in the national dialogue first initiated by IBP.

Key Contact(s)

This section was prepared by Bruce Falls and Tom Beechey in collaboration with staff in Ontario Parks who remain knowledgeable contacts for IBP Sites in Ontario. The authors are currently completing a comprehensive report on the IBP survey in Ontario, which will include a review of the program and a catalogue of the surveyed sites. Reference sets of the completed check-sheets for IBP areas in Ontario are maintained by the Planning and Research Section, Ontario Parks (which also holds the entire collection of original check-sheets), and the Natural Heritage Information Centre (NHIC), Ontario Ministry of Natural Resources, Peterborough. Summaries of the IBP check-sheets have been incorporated into the Natural Areas Database (NADb) of the NHIC and can be accessed on the NHIC website.

Natural Heritage, Lands and Protected Spaces Branch
Ministry of Natural Resources
300 Water Street, 6th Floor
Peterborough, Ontario, K9J 8M5
Phone: 705-755-1729
Fax: 705-755-1701
Website: *www.OntarioParks.com*

Science and Information Branch
Ministry of Natural Resources
300 Water Street, 2nd Floor
Peterborough, Ontario, K9J 8M5
Phone: 705-755-2159
Fax: 705-755-2168
Website: *http://nhic.mnr.gov.on.ca/nhic_.cfm*



This map is illustrative only. Do not rely on this map for legal administrative purposes. Do not rely on it as being a precise indicator of routes, locations of features, or as a guide to navigation. This map may contain cartographic errors or omissions.

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Figure 4-3. International Biological Programme Sites located in Ecoregion 7E.

International Biological Programme Sites in Ecoregion 7E – Legend

1 ALPS SAND HILLS
2 AUSABLE RIVER – ADELAIDE CREEK VALLEY COMPLEX
3 AUSABLE RIVER VALLEY COMPLEX – NORTH SECTION
4 AUSABLE RIVER VALLEY COMPLEX – SOUTH SECTION
5 BACKUS WOODS
6 BAKER WOODS
7 BANNISTER LAKE CONSERVATION AREA
8 BARRETVILLE CLAY PLAIN
9 BERT ARTHUR'S MIXED HARDWOODS
10 BOYD CONSERVATION AREA
11 BRONTE CREEK PROVINCIAL PARK – NATURAL ZONES I, II, II, VII
12 CAMERON SCOTT'S WOODS
13 CATFISH CREEK SAND SLOPE AND FLOOD PLAIN
14 CAVE SPRINGS ESCARPMENT
15 CEDAR CREEK CLAY SLOPE AND FLOODPLAIN
16 CEMETERY CORNER ESCARPMENT
17 CHAMBERS CORNERS CLAY PLAIN
18 CHARLOTTEVILLE ROLLING SANDLAND
19 COLCHESTER SAND PLAINS
20 DECEW FALLS ESCARPMENT
21 DECEW FALLS FLOOD PLAIN
22 DELHI WEST PINE FOREST
23 DICKSON WILDERNESS AREA SAND RIDGES AND MARSH
24 DINGMAN PONDS
25 DORCHESTER ROAD SAND PLAIN
26 DORCHESTER SWAMP – NORTH EAST SECTION
27 DORCHESTER SWAMP – NORTH WEST SECTION
28 DORCHESTER SWAMP – SOUTH SECTION
29 DR. G.H. MARCY'S PROPERTY
30 EAST SISTER ISLAND
31 EDEN WOODS
32 EMERYVILLE CLAY PLAIN
33 ERIE BEACH
34 FISH POINT SAND PLAIN
35 FIVE POINTS WOODS
36 FOSTER PONDS
37 GLEN ABBEY VALLEY
38 HIGHGATE ROLLING SANDLAND
39 HILLMAN SAND HILLS
40 HURLEBURT'S WOODS
41 IROQUOIS BEACH PROVINCIAL PARK – ADDER'S TONGUE FERN MEADOW
42 IROQUOIS BEACH PROVINCIAL PARK – BEACH PLAIN MARSHES
43 JOHN E. PEARCE PROVINCIAL PARK
44 JOLLEY SWAMP
45 KHIVA CONSERVATION WOODLOT
46 LANGTON WOODS
47 LEAMINGTON SAND HILLS
48 LIGHTHOUSE POINT SAND DUNES AND PONDS
49 LITTLE OTTER CREEK CONSERVATION AUTHORITY AREA
50 LITTLE OTTER CREEK VALLEY FOREST
51 LONG POINT
52 LOUISVILLE SAND PLAIN
53 LYONS CREEK CLAYLANDS
54 MABEE WOODS
55 MACK TRUCK WOODS
56 MALDEN CENTRE MARSH
57 MANDAUMIN NATURE RESERVE
58 MAPLE GROVE SWAMP
59 MARBURG STATION SWAMP
60 MARSHFIELD CLAY PLAIN
61 MARSHVILLE STATION CLAY PLAIN
62 MELBOURNE MARSH
63 MILLER'S CREEK
64 MILTON OUTLIER VALLEY
65 MOUNT NEMO CONSERVATION AREA
66 MOUNTAIN ROAD SAND HILLS
67 MUNROE LANDON'S WOODLOT
68 NANTICOKE CREEK MARSH
69 NAVY ISLAND
70 NORTHWOOD SUGAR MAPLE STAND
71 NORWICH JUNCTION WOODS
72 ONEIDA WOODLOT
73 PARIS CRANBERRY BOG
74 PARKHILL MUD CREEK SWAMP
75 PINEHURST CONSERVATION AREA SAND RIDGES
76 PINEHURST SANDY LOAM HILLS
77 PINERY PROVINCIAL PARK – BURLEY PROPERTY AND ADJACENT AREAS
78 PINERY PROVINCIAL PARK – CASTILLEJA MEADOW
79 PINERY PROVINCIAL PARK – HICKORY NATURE TRAIL
80 PINERY PROVINCIAL PARK – WILDERNESS AREA NO. 1
81 PINERY PROVINCIAL PARK – WILDERNESS AREA NO. 2
82 PINERY PROVINCIAL PARK – WILDERNESS AREA NO. 3
83 PINERY PROVINCIAL PARK – WILDERNESS AREA NO. 4
84 POINT ABINO SAND HILLS
85 RATTRAY MARSH
86 RIDGEVILLE SWAMP
87 ROYAL BOTANICAL GARDENS – COOTES PARADISE
88 SELTON ROLLING SANDLAND
89 SHORT HILLS PROVINCIAL PARK
90 SHORT HILLS WILDERNESS AREA AND SURROUNDING WOODS
91 SHREWSBURY SANDY LOAMLAND
92 SIFTON BOTANICAL BOG
93 SKUNK'S MISERY – WARDSVILLE SECTION
94 SOUTH WALSINGHAM SAND RIDGES
95 SPENCER CREEK CONSERVATION AREA
96 SPITTLER CREEK WOODS
97 SPOOKY HILLS WOODLAND
98 SPOOKY HOLLOW NATURE SANCTUARY
99 SPOTTISWOOD LAKES
100 SPRINGVALE CEDAR SWAMP
101 SPRINGWATER FOREST
102 ST. JOHN'S CONSERVATION AREA
103 SULPHUR CREEK FOREST
104 TEETERVILLE SAND RIDGES
105 THAMES RIVER FLOOD PLAIN
106 THAMESVILLE SAND HILLS
107 THE WINDSOR PRAIRIE NATURE RESERVE
108 THEDFORD MARSH FOREST
109 TURKEY POINT CEDAR BLACK SPRUCE SWAMP
110 TURKEY POINT PROVINCIAL PARK – OAK PARKLAND
111 TWO MILE CREEK CLAY PLAIN
112 VAN HORNE SUGAR MAPLE STAND
113 VELLORE TRACT
114 VIENNA PAWPAW STAND
115 WAINFLEET MARSH AND PEAT BOG
116 WALSH ROLLING SANDLAND
117 WEST LORNE WOODLOT
118 WESTMINSTER PONDS
119 WHEATLEY SAND HILLS
120 WINDHAM CENTRE SANDY SWAMPLAND
121 ZENDA TRACT COUNTY FOREST

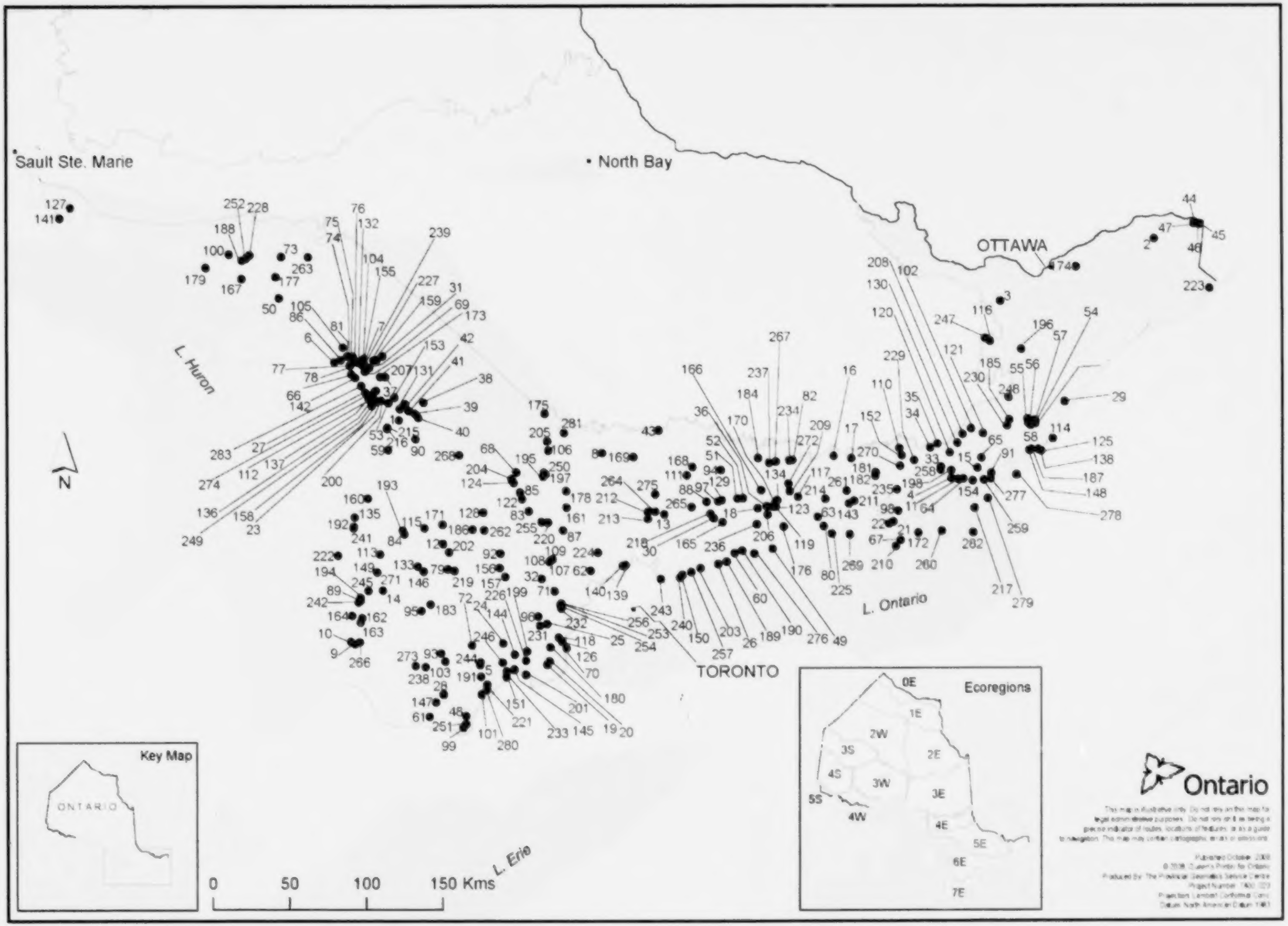


Figure 4-4. International Biological Programme Sites located in Ecoregion 6E.

International Biological Programme Sites in Ecoregion 6E – Legend

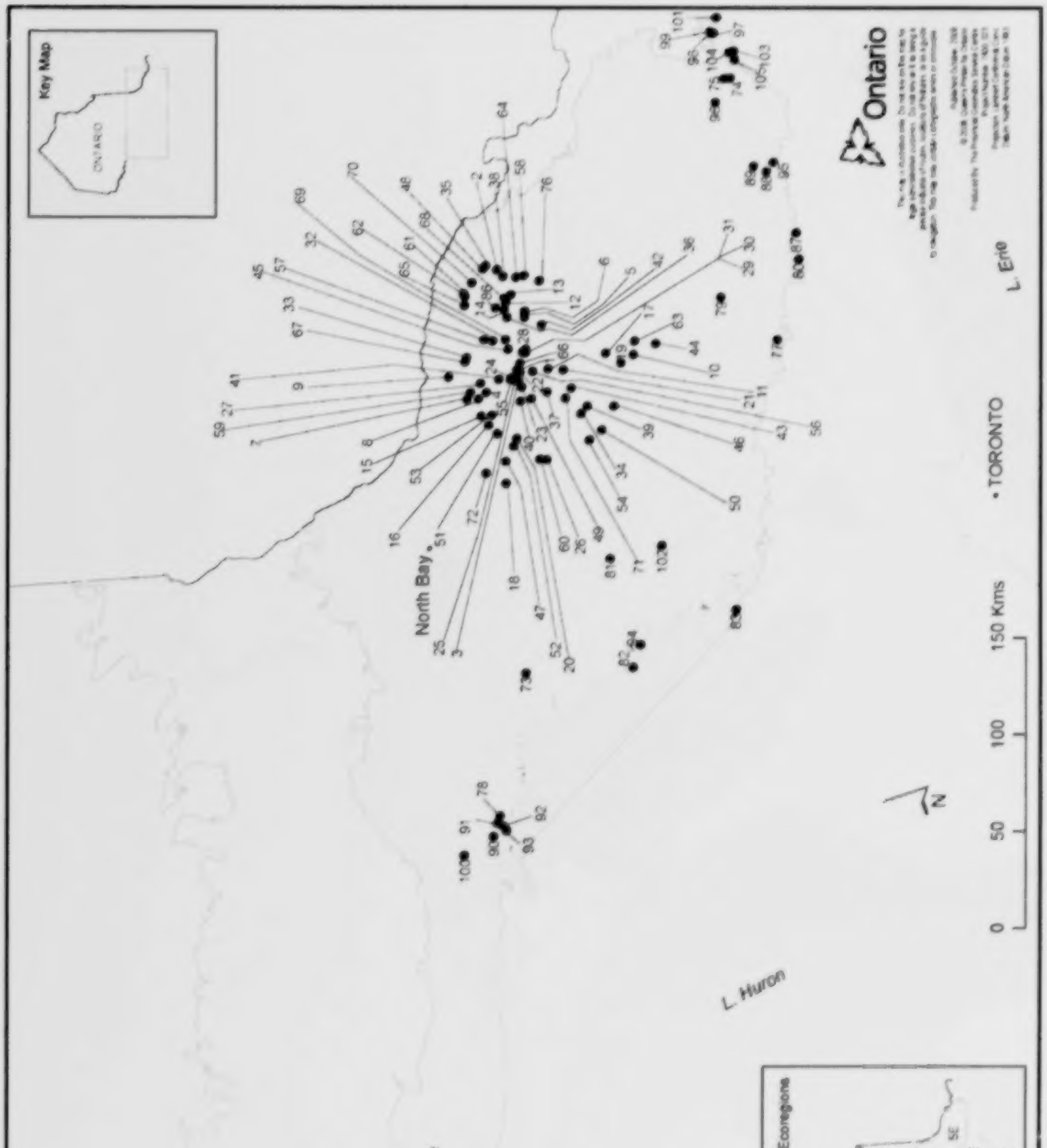
1 ALBEMARLE BROOK
2 ALFRED BOG
3 ALMONTE ALVAR
4 ASSELSTEIN ALVAR
5 BADEN HILLS
6 BAPTIST HARBOUR
7 BARTLEY LAKE – AREAS A, B, C
8 BASS LAKE NATURE RESERVE
9 BAYFIELD RIVER VALLEY – EASTERN SECTION
10 BAYFIELD RIVER VALLEY – WESTERN SECTION
11 BAYVIEW BOG
12 BEATTY SAUGEEN SWAMP
13 BEAVERTON RIVER SWAMP – BLACKWATER BLUE MOUNTAIN
14 BELGRAVE SWAMP
15 BELL'S SWAMP
16 BELMAR BOG
17 BEND BAY VALLEY
18 BENSFORT BRIDGE SWAMP
19 BEVERLY SWAMP RESERVE – CENTRAL SECTION
20 BEVERLY SWAMP RESERVE – NORTH SECTION
21 BIG SWAMP – EAST HALF
22 BIG SWAMP – WEST HALF
23 BLACK CREEK
24 BLOOMINGDALE HERONRY
25 BLUE SPRINGS SCOUT RESERVE
26 BOWMANVILLE MARSH
27 BRADLEY HARBOUR
28 BROOKSDALE FOREST
29 BUELL CREEK MARSH
30 BUNKER HILL SWAMP
31 CABOT HEAD AREA
32 CALEDON LAKE CONSERVATION AREA
33 CAMDEN EAST ALVAR
34 CAMERON SWAMP – CAMDEN LAKE WILDLIFE MANAGEMENT UNIT
35 CAMERON SWAMP – EAST SECTION
36 CAMPBELLTOWN MARSH
37 CAPE CHIN – DEVIL'S MONUMENT
38 CAPE CROKER INDIAN RESERVE – CAPE CROKER
39 CAPE CROKER INDIAN RESERVE – JONES BLUFF
40 CAPE CROKER INDIAN RESERVE – KINGS POINT AND BLUFF
TO MALCOLM BLUFF
41 CAPE CROKER INDIAN RESERVE – SYDNEY BAY TO CAPE PAULETT
42 CAPE DUNDAS
43 CARDEN TOWNSHIP ALVAR – WEST SECTION
44 CARILLON PROVINCIAL PARK – CATTAIL MARSH AND SHORELINE (B)
45 CARILLON PROVINCIAL PARK – LOWLAND FOREST (D)
46 CARILLON PROVINCIAL PARK – SUGAR BUSH (A)
47 CARILLON PROVINCIAL PARK – WESTERN BOUNDARY HARDWOOD (C)
48 CARN'S SUGAR MAPLE FOREST
49 CARR MARSH
50 CARTER BAY SAND DUNES
51 CAVAN SWAMP CONSERVATION AREA
52 CAVAN TOWNSHIP BOG
53 CEMETERY BOG
54 CHARLESTON LAKE PROVINCIAL PARK – BLUE MOUNTAIN
55 CHARLESTON LAKE PROVINCIAL PARK – DEER ISLAND
56 CHARLESTON LAKE PROVINCIAL PARK – DUCK BAY WATERFOWL AREA
57 CHARLESTON LAKE PROVINCIAL PARK – MOUTH OF LEEDER'S CREEK
58 CHARLESTON LAKE PROVINCIAL PARK – SLACK/RUNNING BAY
PENINSULA
59 CHIEFS POINT INDIAN RESERVATION
60 CLARKE SUMMIT SWAMP
61 COBBLE HILLS
62 COLD CREEK CONSERVATION AREA
63 COLD CREEK FOREST
64 COLLINS CREEK SAURURUS STAND
65 COLLINS LAKE WEST SLOPE FOREST
66 CORSANDE BAY, PORCUPINE POINT
67 COVE BEACH SUGAR BUSH
68 CRAIGLEITH CRANBERRY LAKE
69 CRANE LAKE
70 CRAWFORD LAKE CONSERVATION AREA
71 CREDIT FORKS PARK RESERVE
72 CROSS HILL FOREST
73 CUP AND SAUCER TRAIL ESCARPMENT
74 CYPRUS LAKE PROVINCIAL PARK – GEORGIAN BAY CLIFFS
75 CYPRUS LAKE PROVINCIAL PARK – LONG ARM SWAMP LAKE
76 CYPRUS LAKE PROVINCIAL PARK – N.E. BAY OF CAMERON LAKE
77 DORCAS BAY – NORTH OF ROAD
78 DORCAS BAY – SOUTH OF ROAD
79 DREW SWAMP AND BOG
80 DREWRY HILL SWAMP
81 DRIFTWOOD COVE TO LITTLE COVE
82 DUMMER SWAMP
83 DUNEDIN
84 DUNKELD SAUGEEN OXBOW
85 DUNTROON ESCARPMENT FOREST
86 EAGLE'S BLUEBERRY BOG
87 EARL ROWE PROVINCIAL PARK
88 EAST CROSS CREEK SWAMP
89 EAST SARATOGA SWAMP
90 EAST WIARTON UPLAND WOODS
91 EASTVIEW FOREST AND MADOMA MARSH
92 EGERTON ESKER – SOUTH PORTION
93 ELLICE HUCKLEBERRY MARSH
94 EMILY LAKE SWAMP
95 ETHEL SWAMP AND ESKER
96 EVERTON CEDAR SWAMP
97 FEIRMILL PIGEON RIVER SWAMP
98 FISH LAKE SWAMP FOREST
99 FOLDEN SWAMP
100 FOXEY BUR OAK SAVANNAH
101 FRED CHESNEY PROPERTY
102 FRONTENAC PROVINCIAL PARK
103 GADS HILL AGREEMENT FOREST
104 GEORGE LAKE
105 GEORGIAN BAY ISLANDS NATIONAL PARK – FLOWERPOT ISLAND
106 GEORGINA BEACH
107 GLEN CROSS UPLAND FOREST – SECTION ONE
108 GLEN CROSS UPLAND FOREST – SECTION THREE
109 GLEN CROSS UPLAND FOREST – SECTION TWO
110 GOOSE CREEK PONDS
111 GOOSE LAKE WETLANDS
112 GREENOCH HARBOUR
113 GREENOCK SWAMP – SILVER LAKE
114 GRENADIER ISLAND OAK PARKLAND
115 HABERMEHL LAKE
116 HALEY LAKE SWAMP
117 HALFWAY CREEK SWAMP
118 HALTON COUNTY FOREST
119 HARRIS ISLAND MARSH
120 HARROWSMITH BOG
121 HEBERT MEMORIAL BOG
122 HENDERSON PROPERTY
123 HIAWATHA INDIAN RESERVE MARSH
124 HIGH LIME WOODS
125 HILL ISLAND PITCH PINE RIDGE
126 HILTON FALLS CONSERVATION AREA
127 HILTON TOWNSHIP WILDERNESS AREA
128 HOGG'S FALLS PARK RESERVE
129 HOGSBACK FLEETWOOD CREEK SWAMP
130 HOLLEFORD CRATER
131 HOPE NESS FERN STAND
132 HORSESHOE MARSH
133 HUNTINGFIELD AGREEMENT FOREST – EAST HALF
134 INDIAN RIVER MARSH
135 INVERHURON PROVINCIAL PARK
136 IRA LAKE

continued on page 82

International Biological Programme Sites in Ecoregion 6E – Legend

137 IRA LAKE SWAMP
138 IVY LEA PARK
139 JEFFERSON FOREST – EAST SECTION
140 JEFFERSON FOREST – WEST SECTION
141 JOCELYN TOWNSHIP WETLANDS
142 JOHNSTON HARBOUR – CRANE RIVER AREA
143 JOHNSTOWN DRUMLIN FOREST
144 KOSSUTH BOG
145 LAKE ALTRIEVE
146 LAKELET LAKE BOG
147 LAKESIDE SWAMP
148 LANDON BAY
149 LANGSIDE BOG
150 LE VAYS MARSH
151 LESTER'S LAKE
152 LIME LAKE
153 LION'S HEAD PENINSULA
154 LITTLE CATARAQUI MARSH
155 LOWER ANDREW LAKE
156 LUTHER LAKE WILDLIFE MANAGEMENT AREA – NORTH BOG FOREST
157 LUTHER LAKE WILDLIFE MANAGEMENT AREA – WYLDE LAKE BOG
158 LYAL ISLAND
159 LYMBURNER LAKE
160 MACGREGOR POINT WILDLIFE MANAGEMENT UNIT
161 MACKINNON WOODS
162 MAITLAND RIVER VALLEY – CENTRAL SECTION
163 MAITLAND RIVER VALLEY – EASTERN SECTION
164 MAITLAND RIVER VALLEY – WESTERN SECTION
165 MANVERS-FLEETWOOD CREEK VALLEY
166 MARK S. BURNHAM PROVINCIAL PARK
167 MARSH LAKE
168 MARTIN CREEK SWAMP AND ESKER
169 MCGINNIS POINT
170 MCGREGOR BAY MARSH
171 MCLEAN LAKE
172 MCMAHON BLUFF
173 MCVICAR SWAMP
174 MER BLEUE BOG – EASTERN HALF
175 METHODIST POINT PROVINCIAL PARK
176 MILLVALLEY HILLS FOREST
177 MINDENMOYA WAGGS WOODS
178 MINESING SWAMP
179 MISERY BAY
180 MOFFAT MARSH
181 MOIRA CAVES
182 MOIRA RIVER SCUTTLE HOLES
183 MOLESWORTH WOODS
184 MOORE LAKE WETLANDS
185 MORTON PITCH PINE RIDGE
186 MOSS LAKE
187 MT. FITZSIMMONS
188 NAMELESS LAKE
189 NEWCASTLE MARSH
190 NEWTONVILLE BOG
191 NITH RIVER FLOOD PLAIN
192 NORTH LORNE SHORELINE
193 NORTH SAUGEEN RIVER SWAMP AND OXBOW
194 NORTHWEST SARATOGA SWAMP
195 NOTTAWASAGA SAND HILLS
196 NUMOGATE MUD LAKE
197 OAKVIEW BEACH RIDGES
198 ODESSA LAKE SWAMP
199 OIL WELL BOG
200 OLD WOMAN RIVER
201 OLIVER'S BOG
202 ORCHARD VALLEY FOREST
203 OSHAWA SECOND MARSH
204 OSLER BLUFF
205 OSSOSSANE BEACH
206 OTONABEE RIVER BIRDFOOT DELTA MARSH
207 OTTER LAKE
208 OTTER LAKE SANCTUARY
209 OUSE MOUTH MARSH
210 OUTLET BEACH PROVINCIAL PARK
211 PANCAKE HILL SLOPE FOREST
212 PEFFERLAW BROOK SWAMP
213 PEFFERLAW MUD LAKE
214 PERCY REACH WETLANDS
215 PETREL POINT – DUNE AREA
216 PETREL POINT – NATURE RESERVE AREA
217 PIGEON ISLAND
218 PIGEON RIVER SWAMP
219 PIKE LAKE
220 PINE RIVER RIDGE
221 PLATTSVILLE FLATS
222 POINT CLARK
223 POINT MOUILLEE PROVINCIAL PARK
224 POTTAGEVILLE BOG AND SWAMP
225 PRESQU'ILE PROVINCIAL PARK
226 PUSLINCH LAKE CONSERVATION AREA
227 QUENLIN LAKE
228 ROBERTSON MAPLE FOREST
229 ROBLIN HELL HOLES
230 ROCK DUNDER AND DUNDER'S MATE
231 ROCKWOOD LIMESTONE CLIFF
232 ROGERS CREEK ESCARPMENT VALLEY
233 ROSEVILLE SWAMP
234 ROTTEN LAKE
235 SALMON RIVER ALVAR – SOUTH FOREST
236 SAND POINT MARSH
237 SAWER CREEK-LONG LAKE SWAMP
238 SEBRINGVILLE WOODS
239 SHINGLE MARSH
240 SHOAL POINT MARSH
241 SOUTH LORNE SHORELINE
242 SOUTH SARATOGA SWAMP
243 SPEIRS WOODLOT
244 SPONGY LAKE BOG AND SAND HILLS
245 ST. AUGUSTINE BOG AND SWAMP FOREST
246 STECKLE'S WOODS
247 STEWARD LAKE SWAMP
248 STINSON'S SWAMP
249 STOKES BAY – AREAS A, B, C
250 SUNNIDALE HILLS AND BRACKEN GRASSLAND
251 SWEABURG TRILLIUM WOODS NATURE RESERVE
252 TABLE ROCK FLATLANDS
254 TERRA COTTA CONSERVATION AREA
253 TERRA COTTA CALEDON MOUNTAIN PROTECTION LANDS
255 TERRA NOVA VALLEY FOREST
256 THE FIELD CENTRE AT TERRA COTTA
257 THICKSON'S MARSH
258 THORPE ALVAR
259 THOUSAND ISLANDS NATIONAL PARK – CEDAR ISLAND
260 TIMBER ISLAND
261 TRENT CANAL FINAL BEND SWAMP
262 TURNER LAKE SWAMP
263 TURTLE LAKE
264 UXBRIDGE BROOK SWAMP
265 VALENTIA MARSH
266 VARNA DECIDUOUS FOREST
267 WARSAW CAVES CONSERVATION AREA
268 WATERTON CREEK ESCARPMENT
269 WELLER'S BAY
270 WEST PLAIN MUD LAKE
271 WESTFIELD SWAMP
272 WESTWOOD OUSE RIVER SWAMP
273 WHIRL CREEK WOODS
274 WHITEWOOD SWAMP
275 WILFRED BOG
276 WILLOWBEACH MARSH
277 WOLFE ISLAND – ABRAHAM'S HEAD
278 WOLFE ISLAND – BEAUVAIS POINT
279 WOLFE ISLAND – BIG SANDY BAY
280 WOLVERTON SWAMP
281 WYE MARSH WILDLIFE CENTRE
282 YORKSHIRE ISLAND
283 ZINKAN ISLAND COVE

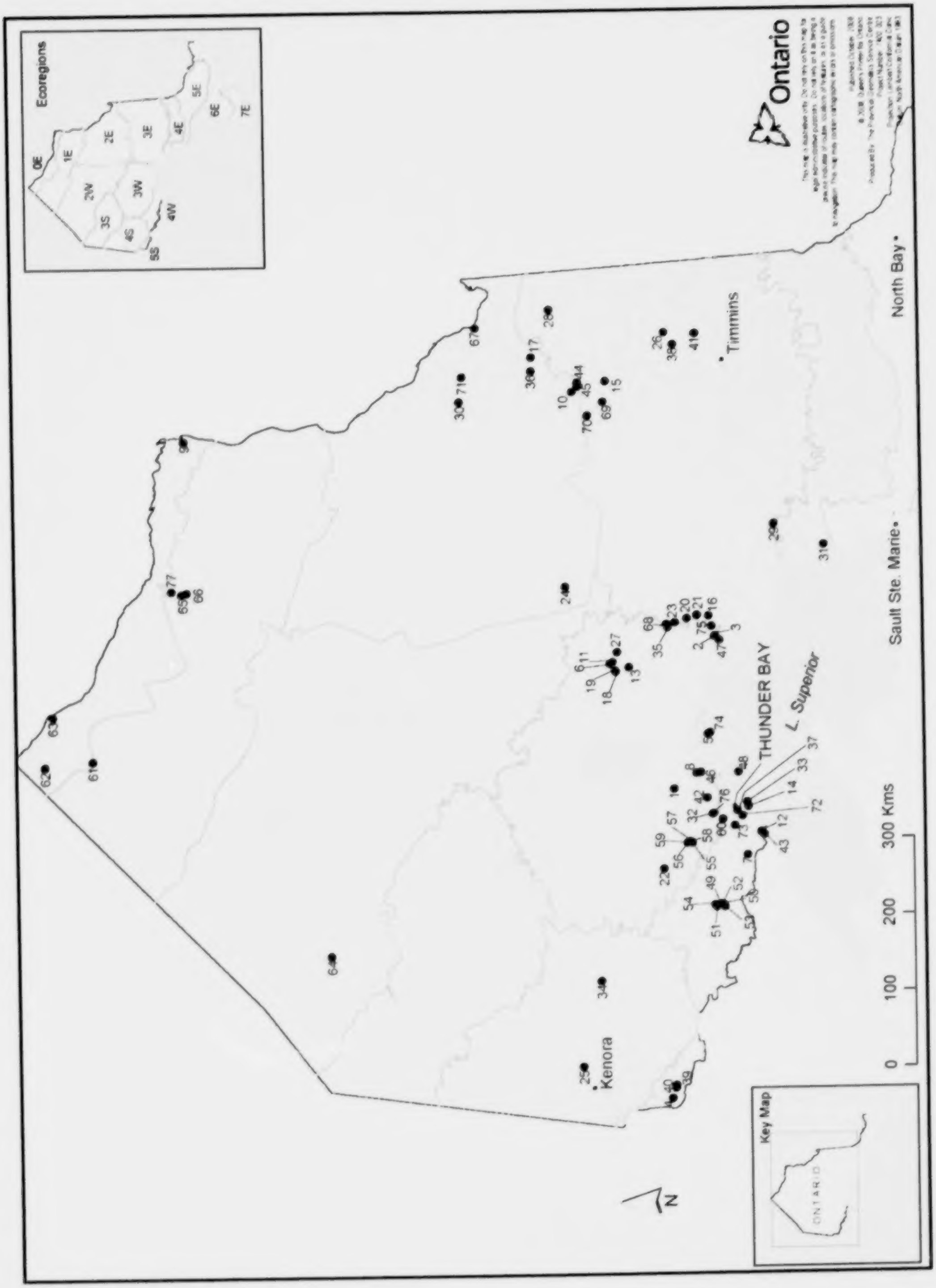
Figure 4-5. International Biological Programme Sites located in Ecoregion 5E.



International Biological Programme Sites in Ecoregion 5E – Legend

1 ALGONQUIN PROVINCIAL PARK – ANGLIN AND DICKSON TOWNSHIPS WHITE PINE STAND
2 ALGONQUIN PROVINCIAL PARK – BARRON RIVER GORGE
3 ALGONQUIN PROVINCIAL PARK – BIG CROW WHITE PINE STAND
4 ALGONQUIN PROVINCIAL PARK – BONANZA BAY MARSH
5 ALGONQUIN PROVINCIAL PARK – BONNECHERE JACK PINE STAND
6 ALGONQUIN PROVINCIAL PARK – BONNECHERE SEDGE MEADOWS
7 ALGONQUIN PROVINCIAL PARK – BRENT CRATER
8 ALGONQUIN PROVINCIAL PARK – BRENT LIMESTONE CLIFF
9 ALGONQUIN PROVINCIAL PARK – BRENT ROAD SPHAGNUM BOG AND ESKER
10 ALGONQUIN PROVINCIAL PARK – BRUTON AND CLYDE RED SPRUCE STAND
11 ALGONQUIN PROVINCIAL PARK – CAMERON CREEK BOG
12 ALGONQUIN PROVINCIAL PARK – CARCAJOU CREEK
13 ALGONQUIN PROVINCIAL PARK – CARCAJOU CREEK JACK PINE
14 ALGONQUIN PROVINCIAL PARK– CARCAJOU SEDGE MEADOW
15 ALGONQUIN PROVINCIAL PARK – CARL WILSON LAKE HARDWOODS
16 ALGONQUIN PROVINCIAL PARK – CARL WILSON WHITE PINE STAND
17 ALGONQUIN PROVINCIAL PARK – CAULIFLOWER LAKE RED SPRUCE FOREST
18 ALGONQUIN PROVINCIAL PARK – CAYUGA CREEK HEMLOCK-HARDWOODS
19 ALGONQUIN PROVINCIAL PARK – CLYDE MARSH
20 ALGONQUIN PROVINCIAL PARK – COLDSPRING LAKE WATERSHED
21 ALGONQUIN PROVINCIAL PARK – COSTELLO CREEK BOG
22 ALGONQUIN PROVINCIAL PARK – CROW LAKE BLOW-DOWN
23 ALGONQUIN PROVINCIAL PARK – CROW LAKE CLIFF
24 ALGONQUIN PROVINCIAL PARK – CROW RIVER JACK PINE STAND
25 ALGONQUIN PROVINCIAL PARK – CROW RIVER YOUNG WHITE PINE STAND
26 ALGONQUIN PROVINCIAL PARK – DAVID CREEK BOG
27 ALGONQUIN PROVINCIAL PARK – DEVIL'S CHUTE
28 ALGONQUIN PROVINCIAL PARK – DICKSON LAKE HARDWOOD STAND
29 ALGONQUIN PROVINCIAL PARK – DICKSON LAKE HEMLOCK STAND
30 ALGONQUIN PROVINCIAL PARK – DICKSON LAKE ISLANDS AND SHORE
31 ALGONQUIN PROVINCIAL PARK – DICKSON LAKE RED PINE STAND
32 ALGONQUIN PROVINCIAL PARK – EUSTACHE LAKE RESERVE
33 ALGONQUIN PROVINCIAL PARK – FITZGERALD TOWNSHIP WHITE PINE STAND
34 ALGONQUIN PROVINCIAL PARK – FOUND LAKE FOREST-BOG COMPLEX
35 ALGONQUIN PROVINCIAL PARK – FRONTIER LAKE JACK PINE STAND
36 ALGONQUIN PROVINCIAL PARK – GREENLEAF CREEK WATERSHED
37 ALGONQUIN PROVINCIAL PARK – HAILSTORM CREEK MARSH
38 ALGONQUIN PROVINCIAL PARK – HIGH FALLS
39 ALGONQUIN PROVINCIAL PARK – HILLIARD LAKE WOODSIA SCOPULINA STAND
40 ALGONQUIN PROVINCIAL PARK – HOGAN LAKE MARSH
41 ALGONQUIN PROVINCIAL PARK – HOGAN ROAD
42 ALGONQUIN PROVINCIAL PARK – KEEGOS BLACK SPRUCE BOG
43 ALGONQUIN PROVINCIAL PARK – KILLARNEY LODGE HEMLOCK HARDWOOD STAND
44 ALGONQUIN PROVINCIAL PARK – KINGSCOTE LAKE HARDWOODS
45 ALGONQUIN PROVINCIAL PARK – LAKE LAVIEILLE RED PINE STAND
46 ALGONQUIN PROVINCIAL PARK – LIVINGSTONE TOWNSHIP WHITE PINE-HARDWOOD STAND
47 ALGONQUIN PROVINCIAL PARK – LOUGHRIN CREEK WHITE PINE STAND
48 ALGONQUIN PROVINCIAL PARK – MCMANUS LAKE BASSWOOD STAND
49 ALGONQUIN PROVINCIAL PARK – MERCHANT LAKE BLOW-DOWN
50 ALGONQUIN PROVINCIAL PARK – MINTO LAKE MAPLE-YELLOW BIRCH STAND
51 ALGONQUIN PROVINCIAL PARK – NADINE LAKE HARDWOODS
52 ALGONQUIN PROVINCIAL PARK – NIPISSING RIVER WHITE PINE STAND
53 ALGONQUIN PROVINCIAL PARK – NIPISSING VALLEY WHITE PINE STAND
54 ALGONQUIN PROVINCIAL PARK – OAK LAKE RED SPRUCE FOREST
55 ALGONQUIN PROVINCIAL PARK – OLD PINE RESERVE
56 ALGONQUIN PROVINCIAL PARK – OPEONGO RED PINE STAND
57 ALGONQUIN PROVINCIAL PARK – OTTERPAW CREEK JACK PINE STAND
58 ALGONQUIN PROVINCIAL PARK – PINE RIVER RESERVE
59 ALGONQUIN PROVINCIAL PARK RANA LAKE SUGAR MAPLE-RED OAK-BEECH STAND
60 ALGONQUIN PROVINCIAL PARK – ROSEBARY LAKE
61 ALGONQUIN PROVINCIAL PARK – SCHOONER RAPIDS BLACK ASH RESERVE
62 ALGONQUIN PROVINCIAL PARK – SCHOONER RAPIDS BLUE BEECH FOREST
63 ALGONQUIN PROVINCIAL PARK – SKUNKITTEN LAKE DROWNED SPHAGNUM BOG
64 ALGONQUIN PROVINCIAL PARK – TARN LAKE
65 ALGONQUIN PROVINCIAL PARK – THE NATCH
66 ALGONQUIN PROVINCIAL PARK – THOMAS LAKE KETTLE BOG
67 ALGONQUIN PROVINCIAL PARK – WEASEL LAKE WHITE PINE STAND
68 ALGONQUIN PROVINCIAL PARK – WENDA LAKE HARDWOODS
69 ALGONQUIN PROVINCIAL PARK – WHITE PARTRIDGE CREEK CLIFF
70 ALGONQUIN PROVINCIAL PARK – WHITSON LAKE SILVER MAPLE SWAMP
71 ALGONQUIN PROVINCIAL PARK – WILDLIFE RESEARCH AREA WHITE PINE STAND
72 ALGONQUIN PROVINCIAL PARK – WILKES LAKE HARDWOOD STAND
73 BLAIR TOWNSHIP NATURE RESERVE CANDIDATE
74 BOB'S LAKE LONG BAY ISLAND
75 BOB'S LAKE MILL BAY PEAT FOREST
76 BONNECHERE RIVER SILVER MAPLE SWAMP
77 BUCKHORN WILDERNESS AREA
78 CARLYLE TOWNSHIP SINKHOLE BOG
79 CROWE-CHANDOS CONFLUENCE SWAMP
80 CROWE LAKE SWAMP AND RIDGE COMPLEX
81 FIFTEEN MILE LAKE BOG
82 FRANKLIN ISLAND – LITTLE LAKES-BROWN BAY-NORTH ARM
83 GIANT'S TOMB ISLAND
84 GOULAIS RIVER PEATLANDS AND SAND RIDGES – EAST SECTION
85 GOULAIS RIVER PEATLANDS AND SAND RIDGES – WEST SECTION
86 GRAND LAKE MARSH
87 HUCKLEBERRY ROCKS
88 KALADAR JACK PINE FOREST
89 KALADAR JACK PINE RIDGE
90 KILLARNEY PROVINCIAL PARK – GENERAL
91 KILLARNEY PROVINCIAL PARK – LAKE KAKAKISE BOG-FOREST COMPLEX
92 KILLARNEY PROVINCIAL PARK – LONG ALDER SWAMP COMPLEX
93 KILLARNEY PROVINCIAL PARK – MATURE FLOATING LEATHERLEAF BOG
94 KILLBEAR PROVINCIAL PARK
95 LITTLE MELLON LAKE CACTUS SITE
96 LITTLE ROUND LAKE
97 MURPHY'S POINT PROVINCIAL PARK – BLACK CREEK (B)
98 MURPHY'S POINT PROVINCIAL PARK – FERN CLIFF (C)
99 MURPHY'S POINT PROVINCIAL PARK – PRIMEVAL POND (A)
100 PANACHE LAKE NATURE RESERVE
101 PORTLAND BOG
102 SKELETON BAY CLIFFS
103 UPPER RIDEAU LAKE, BIG AND LITTLE BAY PENINSULA
104 WESTPORT MOUNTAIN BOG
105 WESTPORT SAND LAKE NORTH SHORE SLOPE

Figure 4-6. International Biological Programme Sites located in northern Ontario in relation to Ecoregion boundaries.



International Biological Programme Sites in Northern Ecoregions – Legend

1 ALBERT LAKE MESA
2 BLACK RIVER GORGE – JACK PINE STAND
3 BLACK RIVER GORGE – UPPER GORGE SITE
4 BLUE TOWNSHIP MINEROTROPHIC PEATLANDS
5 BOWMAN ISLAND
6 BURROWS RIVER MARSHES
7 CASTLE CREEK PONDS
8 CAVERN LAKE GORGE
9 CLOUDY LAKE RIDGES REGION
10 CORAL RAPIDS STATION FEN PEATLANDS
11 CRIB ROAD, MILE 15 FOREST
12 DEVON ROAD MESA
13 ELDEE ROAD LAKE
14 FLATLAND ISLAND
15 FRASERDALE BOG
16 GABY CREEK SEDGE MEADOW
17 GYPSUM MOUNTAIN
18 HIGHWAY 584 BURN – BLACK SPRUCE BURN
19 HIGHWAY 584 BURN – RELICT POPLAR BURN
20 HIGHWAY 614 POND AND BOG SOUTH OF HUGGARD LAKE
21 HIGHWAY 614 RIDGES SOUTH OF BLACK RIVER
22 HOGARTH LAKE PEATLAND
23 INDUSTRIAL ROAD BOG
24 JOG LAKE MINEROTROPHIC STRINGMIRE
25 JONES ROAD WILDERNESS AREA
26 KENNEDY ROAD BOG
27 KENOGAMI RIVER MARSHES
28 KESAGAMI LAKE SAND RIDGE FORESTS
29 KINNIWABI RIVER SCOUR HOLES
30 KINOJE LAKES
31 LAKE SUPERIOR PROVINCIAL PARK – AGAWA RIVER NATURAL ZONE
32 LAKEHEAD UNIVERSITY FOREST – BLACK SPRUCE BOG
33 LE PATE, PIE ISLAND
34 LOLA LAKE PEATLAND
35 MANITOU FALLS
36 MEDICINE CREEK SPRUCE ISLAND PEATLAND
37 MOSQUITO CREEK FLOOD PLAIN
38 NAHMA BOG
39 NELLES TOWNSHIP PEATLAND – KISHKAKOESIS SECTION
40 NELLES TOWNSHIP PEATLAND – SPRUCE ISLAND SECTION
41 NELLIE LAKE BOG
42 NORTH END ONION LAKE
43 OLD CROSSING AT PIGEON RIVER
44 OTTER RAPIDS TYRELL SEA TRANSITION – EAST SECTION
45 OTTER RAPIDS TYRELL SEA TRANSITION – WEST SECTION
46 OUIMET CANYON
47 PIC RIVER MOUTH SAND DUNES
48 PORPHYRY ISLAND
49 QUETICO PROVINCIAL PARK – BELAIRE LAKE CEDAR SWAMP
50 QUETICO PROVINCIAL PARK – GREENSTONE CLIFF AND TALUS SLOPE
51 QUETICO PROVINCIAL PARK – LINDSAY-CACHE LAKE FOREST
52 QUETICO PROVINCIAL PARK – WAWIAG RIVER FLOODPLAIN A
53 QUETICO PROVINCIAL PARK – WAWIAG RIVER FLOODPLAIN B
54 QUETICO PROVINCIAL PARK – ZEPHIRA LAKE ROCKLAND
55 RAITH REGION, ABITIBI ACCESS ROAD – SITE 1: ASPEN STAND
56 RAITH REGION, ABITIBI ACCESS ROAD – SITE 2: BLACK SPRUCE BOG B
57 RAITH REGION, ABITIBI ACCESS ROAD – SITE 3: BLACK SPRUCE BOG A
58 RAITH REGION, ABITIBI ACCESS ROAD – SITE 4: BLACK SPRUCE SAVANNAH
59 RAITH REGION, ABITIBI ACCESS ROAD – SITE 5: JACK PINE STAND
60 RED RIVER ROAD BOG
61 SEVERN RIVER DRAINAGE BASIN – BEAVER RIVER REGION
62 SEVERN RIVER DRAINAGE BASIN – BLACK DUCK RIVER PALSAS
63 SEVERN RIVER DRAINAGE BASIN – HUDSON BAY BEACH RIDGES
64 SEVERN RIVER DRAINAGE BASIN – SANDY-SACHIGO LAKES REGION
65 SHAMATTAWA-WINISK CONFLUENCE –COALESCENT FLARK PEATLANDS
66 SHAMATTAWA-WINISK CONFLUENCE – SHAMATTAWA GORGE
67 SHIPSANDS ISLAND
68 SLINGSHOT CREEK POPLAR FOREST
69 SMOKEY FALLS JACK PINE FOREST
70 SMOKEY FALLS PATTERNED FEN
71 SPARLING MEMORIAL FENS
72 SQUARE TOP MOUNTAIN
73 STANLEY BUR OAK FOREST
74 TALBOT ISLAND
75 TOWNSHIP 74 POPLAR FOREST
76 TROUT LAKE JACK PINE STAND
77 WINISK RIVER ALLUVIAL ISLANDS

Image by D. Paleczny

4.2 Ramsar Convention Sites

Introduction

In 1971, at the invitation of the Government of Iran, representatives from 18 countries and several international organizations met in the town of Ramsar to review global wetland issues. The delegation drafted the *Convention on Wetlands of International Importance especially as Waterfowl Habitat* (commonly referred to as the Ramsar Convention), which came into effect in December 1975. In January 1981 Canada became the 29th Contracting Party to the Ramsar Convention. The Ramsar Convention's mission *"is the conservation and wise use of all wetlands through local, regional and national actions and international cooperation, as a contribution towards achieving sustainable development throughout the world"* (Ramsar Convention Secretariat, 1996:3).

The Conference of the Contracting Parties is the Ramsar Convention's governing body, which meets every three years to address program logistics and financing, review implementation of the convention, and set priorities. Under the Ramsar Convention, contracting parties designate sites for inclusion in the *List of Wetlands of International Importance* (CWS, 1998; Environment Canada, 1997; Gillespie et al., 1991; Rubec and Kerr-Upal, 1996; Taylor, 2002). At present, the Ramsar Convention has 155 contracting parties with 1,674 wetland sites (totaling 150 million ha) designated for inclusion on the Ramsar List (Ramsar Convention Secretariat, 2007).

The Ramsar Convention's definition of a wetland encompasses ecosystems ranging from rivers to coastal areas, and includes coral reefs and human-made wetlands. Wetlands can incorporate riparian and coastal zones adjacent to the wetland area, estuarine waters, and islands or bodies of marine water. Ramsar defines a wetland as any *"marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six metres"* (Ramsar Convention Secretariat, 2005). In Canada, 37 wetlands covering over 13 million ha are designated as Ramsar Convention Sites. There are eight Ramsar Convention sites in Ontario (Ramsar Convention Secretariat, 2007) (Table 4-1, Fig. 4-7).

Legislation and Policy Basis

The Ramsar Convention is intended to support, not override, the legislation of provincial/territorial or federal governments, and emphasizes sustainability ('wise use') by encouraging uses that are compatible with, and sustain, the wetland's natural properties. For example, permitted activities should not alter or destroy the ecological character of the wetland.

The Canadian Wildlife Service is responsible for the administration of Canada's participation in the Ramsar Convention, and works cooperatively with municipal, provincial, and territorial government agencies, NGOs, as well as private landowners. In Ontario, for example, Ramsar Convention Sites are protected by federal and provincial agencies under the auspices of a number of statutes including the *Canada Wildlife Act*, the *Migratory Birds Convention Act*, and the *Provincial Parks and Conservation Reserves Act*. Portions of some Ramsar Convention Sites also are located on private land.

Protection Goal and/or Objectives

The vision for the Ramsar List is *"to develop and maintain an international network of wetlands which are important for the conservation of global biological diversity and for sustaining human life through the maintenance of their ecosystem components, processes and benefits/services"* (Ramsar Convention Secretariat, 2005). Four objectives are outlined by the strategic framework:

- Establish national networks of Ramsar Sites in each Contracting Party which fully represent the diversity of wetlands and their key ecological and hydrological functions.
- Contribute to maintaining global biological diversity through the designation and management of appropriate wetland sites.
- Foster cooperation among Contracting Parties, the Convention's international organization partners, and local stakeholders in the selection, designation, and management of Ramsar Sites.
- Use the Ramsar Site network as a tool to promote national, supranational/regional, and international cooperation in relation to complementary environment treaties (Ramsar Convention Secretariat, 2005).

Table 4-1. Ramsar Convention Sites in Ontario.

Ramsar Convention Site	Area (ha)
Polar Bear Provincial Park	2,408,700
Southern James Bay	25,290
Minesing Swamp	6,000
Matchedash Bay Provincial Wildlife Area[1]	1,840
Long Point National Wildlife Area and other properties	13,730
Point Pelee National Park	1,564
Mer Bleue Conservation Area	3,447
St. Clair National Wildlife Area [2]	244
Total	2,460,815

[1] The size of the Matchedash Bay Provincial Wildlife Area (1,046 ha; see Table 6-15 on page 233) and the Ramsar Site (1,840 ha) are different because they are managed for similar as well as different objectives.

[2] The area of the St. Clair National Wildlife Area Ramsar Site is officially listed as 244 ha. However, since the Ramsar Site was designated, Environment Canada has acquired and added 41 ha of new habitat known as the Bear Creek Unit (N. Patterson, personal communication).

Selection Criteria

Criteria for the designation of wetlands of international importance are classified into two groups:

- Sites containing representative, rare, or unique wetland types.
- Sites of international importance for conserving biodiversity (Ramsar Convention Secretariat, 2005).

It is important to note that wetlands may be considered internationally important in the first group if they contain a representative, rare, or unique example of a natural or near-natural wetland type found within the appropriate biogeographic region. Sites recognized for conserving biodiversity are further subdivided into four categories, each with its own criteria:

1. Species and Ecological Communities – A wetland may be considered internationally important if it supports:
    - Vulnerable, endangered, or critically endangered species or threatened ecological communities.
    - Populations of plant and/or animal species important for maintaining the biological diversity of a particular biogeographic region.
    - Plant and/or animal species at a critical stage in their life cycle, or provides refuge during adverse conditions

2. Waterbirds – A wetland may be considered internationally important if it regularly supports:
    - 20,000 or more waterbirds.
    - 1% of the individuals in a population of one species or subspecies of waterbird.

3. Fish – A wetland may be considered internationally important if it:
    - Supports significant proportions of indigenous fish subspecies, species, or families, life-history stages, species interactions and/or populations that are representative of wetland benefits and/or values and thereby contributes to global biological diversity.
    - Is an important source of food for fish, spawning grounds, nursery, and/or migration path on which fish stocks, either within the wetland or elsewhere, depend.

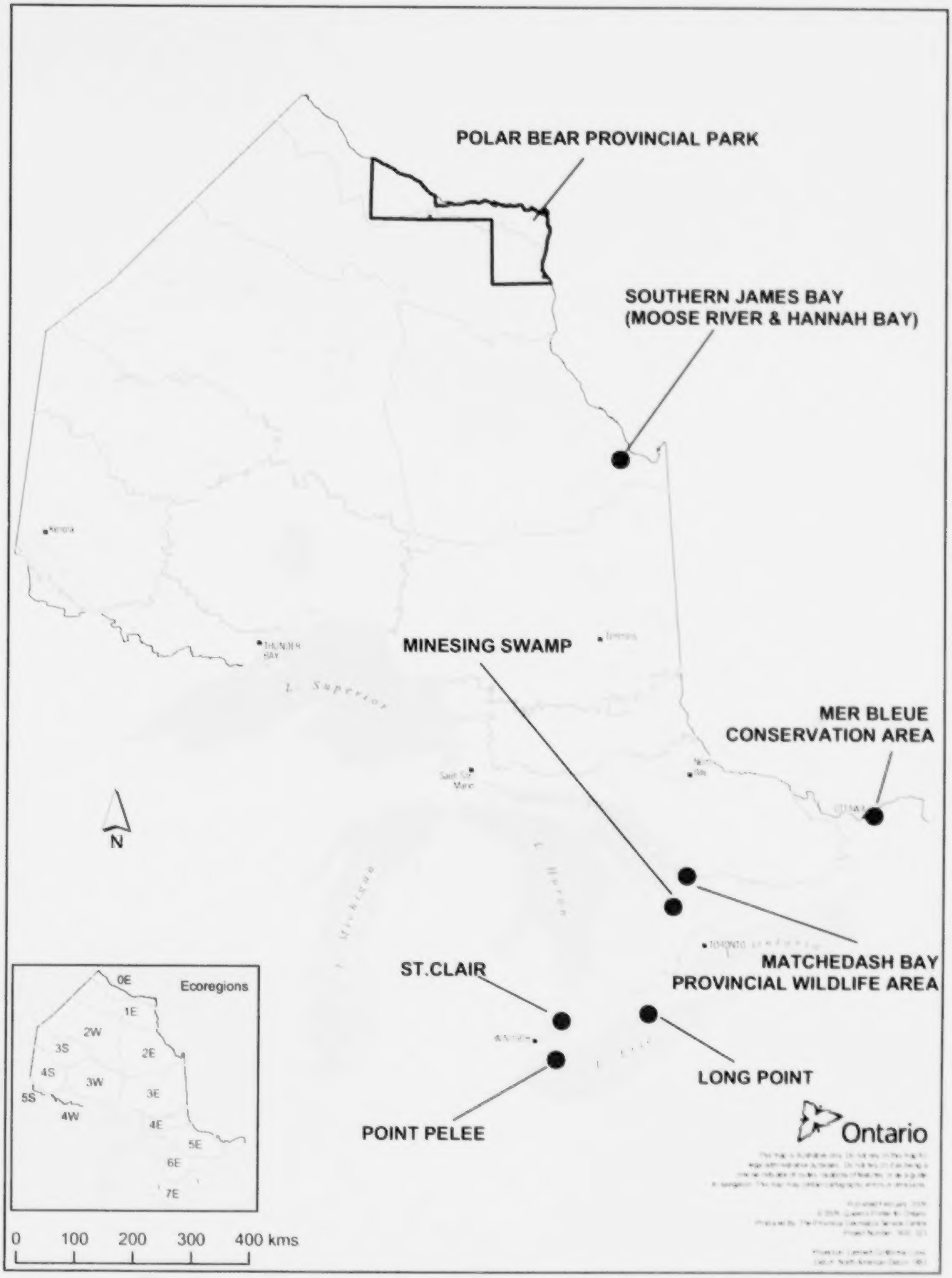
4. Other Taxa – A wetland may be considered internationally important if it regularly:
    - Supports 1% of the individuals in a population of one species or subspecies of wetland-dependent non-avian animal species (Ramsar Convention Secretariat, 2005).

Management Objectives and/or Guidelines

Under the auspices of the 'wise use' principles, Contracting Parties work to:

- Establish and implement national wetland conservation policies.
- Undertake review and revision of legislation and governmental infrastructure to promote wetland conservation.
- Undertake inventories and management planning for wetlands.
- Promote wetland research.

Figure 4.7. Ramsar Convention Sites in Ontario in relation to Ecoregion boundaries.



- Establish protected wetland reserves.
- Promote public education and awareness of wetland values and conservation (North American Wetlands Conservation Council, 1995:3).

The Degree of Protection for Ramsar Convention Sites and the Corresponding IUCN Protected Area Management Strategy: A Preliminary Assessment

Ramsar Convention Sites are international designations that may be protected under the auspices of other types of protected areas. 'Fully protected' sites managed through national and provincial mechanisms fall into more than one IUCN protected area category, including Categories Ib, II, and IV (Table 4-2). Some Ramsar Convention Sites do not qualify under the IUCN protected areas classification because they are only 'partially protected' under different mechanisms.

Key Contact(s)

The Ramsar Convention Secretariat
Rue Mauverney 28
CH-1196 Gland, Switzerland
Telephone: +41 22 999 0170
Fax: +41 22 999 0169
Website: www.ramsar.org

Canadian Wildlife Service,
Environment Canada
Ottawa, Ontario K1A 0H3
Telephone: 819-997-2800 or 1-800-668-6767
Fax: 819-994-1412
Website: www.ec.gc.ca/international/multilat/wet_e.htm
Information: enviroinfo@ec.gc.ca

Table 4-2. Ramsar Convention Sites and IUCN protected area categories.

Ramsar Convention Site	IUCN Category
Polar Bear Provincial Park	2,408,700 ha in Category Ib.
Southern James Bay	25,290 ha are considered 'partially protected' because only the animals are protected under the auspices of the *Migratory Birds Convention Act*. There is no legal mechanism to protect all habitats.
Minesing Swamp	3,500 ha of publicly owned land are in Category IV, and the remaining hectares are in private or municipal ownership.
Matchedash Bay Provincial Wildlife Area	1,840 ha in Category IV.
Long Point National Wildlife Area	10,790 ha in Category II that are designated in public ownership, and 2,940 ha in private ownership that are considered 'partially protected'.
Point Pelee National Park	1,564 ha in Category II.
Mer Bleue Conservation Area	3,447 ha in Category II managed by the National Capital Commission.
St. Clair National Wildlife Area	244 ha in Category IV.

4.3 Biosphere Reserves

Introduction

The Biosphere Reserve concept was created by a task force of UNESCO's Man and Biosphere Program (MAB) in 1974 and launched in 1976. Biosphere Reserves are designed to reconcile the conservation of biodiversity with economic development. Biosphere Reserves are "*areas of terrestrial and coastal/marine ecosystems or a combination thereof, which are internationally recognized within the framework of UNESCO's Programme on MAB*" (UNESCO, 1997), fulfilling three inter-related functions: conservation, development, and logistical support (UNESCO, 2007b).

By 2007, 507 Biosphere Reserves in 102 countries, encompassing more than two billion hectares had been designated (UNESCO, 2007b). Canada has been involved with the Man and Biosphere Program since its inception. The first Canadian Biosphere Reserve was established in 1978 at Mont St. Hilaire in Quebec. Canada has established 13 Biosphere Reserves and one candidate Biosphere Reserve (CBRA, 2005). Four Biosphere Reserves are located in Ontario (UNESCO, 2007b) (Table 4-3, Fig. 4-8).

The Man and Biosphere Program provided the first formal mechanism designed to integrate a range of disparate international and national research projects, conservation management programs, and training activities. Biosphere Reserves are internationally recognized areas of terrestrial and coastal ecosystems or a combination thereof, established to:

- Promote the conservation and sustained human use of ecosystems of one or more of the world's natural regions.
- Include a landscape or waterscape of which people are an integral part, and which is managed for multiple objectives ranging from complete protection to intensive yet sustainable production.
- Serve as a regional centre for monitoring, research, education, training, and demonstration on natural and managed ecosystems.
- Serve as a place where people from industry, government, academia, and research institutes work in close cooperation with local people in developing a model program for land and water management that meets people's needs, while conserving natural processes and sustaining biological resources.
- Provide an example of human dependence on the natural environment and of voluntary cooperation to conserve and use resources for the well-being of people everywhere (Canada/MAB, 1987:1).

Image by P.A. Gray

Table 4-3. Biosphere Reserves in Ontario.

Biosphere Reserve	Area (ha)
Long Point, 1986	**40,600**
Niagara Escarpment, 1990	**190,270**
Frontenac Arch, 2002	**150,000**
Georgian Bay Littoral, 2004	**347,270**
Total	**728,140**

Source: UNESCO (2007b)

Biosphere Reserves form a world-wide network (the 'World Network of Biosphere Reserves') to support initiatives aimed at the conservation of biological diversity and the sustainable use of ecosystems. The Biosphere Reserves contribute to the objectives of the *Convention on Biological Diversity* (CBD) and other relevant treaties and instruments (UNESCO, 1997).

Legislation and Policy Basis

Each Biosphere Reserve falls under the sovereign control and legislation of the sponsoring jurisdiction. For example, the *National Wildlife Act* is the principal legislation employed to protect the Long Point Biosphere Reserve. In the Niagara Escarpment Biosphere Reserve, the *Niagara Escarpment Planning and Development Act* establishes a planning process to ensure that the area is protected (see Section 6.14 on The Niagara Escarpment on page 259).

Protection Goal and/or Objectives

The long-term goal of the Man and Biosphere Program is to create an international network of Biosphere Reserves that collectively represent Earth's major ecosystems with different patterns of human use and adaptations to them. Two important objectives are to:

- Develop within the natural and social sciences a basis for the rational use and conservation of the resources of the biosphere and for the improvement of the relationship between humans and the ecosphere.
- Predict the consequences of today's actions on tomorrow's world and thereby increase the ability of humans to efficiently manage the natural resources of the biosphere (IUCN, 1979).

Selection Criteria

To qualify as a Biosphere Reserve, an area should:

- Encompass a mosaic of ecological systems representative of major biogeographic regions, including a gradation of human interventions.
- Contain significant biological diversity and merit special conservation.
- Provide an opportunity to explore and demonstrate approaches to sustainable development at a regional scale.
- Be large enough to serve the three functions of Biosphere Reserves – conservation, development, and logistical support.
- Include the aforementioned functions through Core Area, Buffer Zone, and Transition Area zoning:
    - **Core Area:** A Core Area is provided for long-term protection according to the conservation objectives of the Biosphere Reserve program and is large enough to meet these objectives.
    - **Buffer Zone:** A Buffer Zone surrounds or is contiguous to the Core Area in which only activities compatible with the conservation objectives can take place.
    - **Transition Area:** Sustainable resource management practices are promoted and developed in an outer Transition Area (UNESCO, 1997).

Management Objectives and/or Guidelines

Because the Biosphere Reserve program focuses on the relationship between humans and the biosphere, the major program objective is to establish a combination of conservation and active use involving research, education, and training (IUCN, 1979). Biosphere Reserve management programs provide for:

- The conservation of landscapes, ecosystems, species, and genetic variation.
- Sustainable development by fostering economic and human development which is socio-culturally and ecologically sustainable.
- Logistical support for demonstration projects, environmental education and training, research, and monitoring related to local, regional, national, and global issues of conservation and sustainable development (UNESCO, 1997).

Image by P. Kor

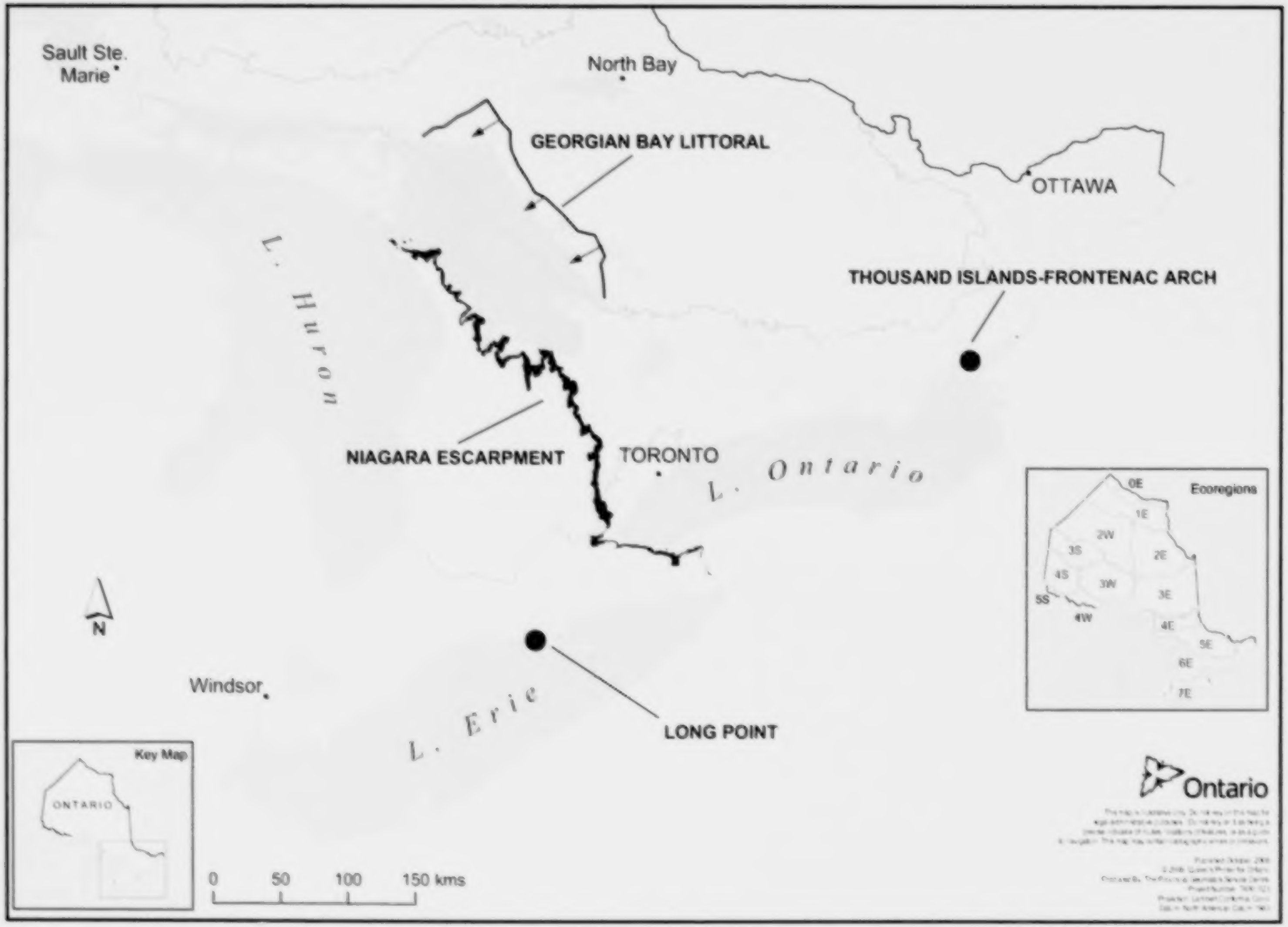


Figure 4.8. Biosphere Reserves in Ontario in relation to Ecoregion boundaries.

Biosphere Reserves are compatible with many human activities, where multiple use represents an attractive option for governments responsible for the management of natural assets in areas where strictly managed landscapes and waterscapes (e.g., National Parks) are unpopular (Taschereau, 1985) or logistically unattainable. Management includes provision for:

- Mechanisms to manage human use and activities in the Buffer Zone(s).
- A management policy or plan for the area designated as a Biosphere Reserve.
- A designated authority or mechanism to implement the policy or plan.
- The involvement and participation of public authorities, local communities, and private interests in the design and management of the Biosphere Reserve.
- Programs for research, monitoring, education, and training (UNESCO, 1997).

The Degree of Protection for Biosphere Reserves and the Corresponding IUCN Protected Area Management Strategy: A Preliminary Assessment

Areas designated as Biosphere Reserves are protected under a range of legal mechanisms used by sponsoring jurisdictions. Biosphere Reserves can be classified into more than one IUCN category. For example, portions of the Long Point Biosphere Reserve are encompassed by a National Wildlife Area and a Provincial Park. Similarly, there are many different types of parks and protected areas within the Niagara Escarpment Biosphere Reserve. Given that Biosphere Reserves are designed as an integrated network of areas, there is merit in comparing each natural heritage area in the Biosphere Reserve with the IUCN protected area classification system. In addition, it is possible that the collective application of domestic protection mechanism(s) used to care for Biosphere Reserves could qualify these designations as IUCN Category V protected areas.

Key Contact(s)

The World Heritage Centre UNESCO
7, place de Fontenoy
75352 Paris 07 SP
France
Téléphoné : 33-1-45 68 15 71
Fax : 33-1-45 68 55 70
Website: *www.unesco.org/mab/BRs.shtml*
Information: *mab@unesco.org*

Canadian Commission for UNESCO
350 Albert Street, P.O. Box 1047
Ottawa, Ontario
K1P 5V8
Telephone: 613-566-4414 or 1-800-263-5588
Fax: 613-566-4405
Website:
www.unesco.ca/en/activity/sciences/biospheres.aspx

Canadian Biosphere Reserves Association (CBRA)
c/o Parks Canada
25 Eddy St.
Gatineau, Quebec
K1A 0M5
Telephone: 819-994-2691
Fax: 819-997-0835
Website: *www.biosphere-canada.ca/home.asp*

4.4 World Heritage Sites

Introduction

The idea of creating an international movement for protecting world class heritage sites emerged after World War I. The *Convention Concerning the Protection of the World Cultural and Natural Heritage* (*World Heritage Convention*) was created through the merging of two separate movements: protecting cultural and natural assets. At a 1965 White House Conference in Washington, D.C., delegates called for a 'World Heritage Trust' to stimulate international cooperation to protect *"the world's superb natural and scenic areas and historic sites for the present and the future of the entire world citizenry"* (UNESCO, 2008:1). And in 1968, the IUCN developed a similar proposal for its member organizations. These proposals were presented to the 1972 United Nations Conference on Human Environment in Stockholm, and a single text was drafted and agreed upon by all parties concerned. The *World Heritage Convention* was adopted by the General Conference of UNESCO on November 16, 1972. By regarding heritage as both cultural and natural, the *World Heritage Convention* reminds us of the ways in which people interact with nature, and of the fundamental need to preserve the balance between the two (UNESCO, 2008:1).

The *World Heritage Convention* is an agreement that has been signed by 184 countries to date. Each signatory agrees to contribute the necessary financial and intellectual resources to protect World Heritage Sites – areas of outstanding universal value. Currently there are 851 World Heritage Sites (660 cultural, 166 natural, and 25 mixed sites) (UNESCO, 2007a). One of the 14 World Heritage Sites in Canada is located in Ontario (the Rideau Canal, Fig. 4-9) and a proposal for the designation of a second site (the Atikaki/Woodland Caribou/Accord First Nations Area) is being drafted (Box 4-6).

Image by P. Kor

Box 4-6. World Heritage Sites in Ontario.

In 2007, the Rideau Canal became Ontario's first World Heritage Site. Spanning 202 km from Ottawa south to Kingston Harbour on Lake Ontario, the Rideau Canal is the best preserved example of a slackwater canal in North America. Built in the 19th century the Rideau Canal has retained most of its original structure and is the only operational canal from that era (UNESCO, 2007c). Currently, the Atikaki/Woodland Caribou/Accord First Nations area in Ontario and Manitoba is being proposed as the Pimachiowin-Aki World Heritage Site (Lindsay, 2008; Parks Canada, 2004). This wilderness area will encompass up to four million ha of boreal forest. A working group comprised of representatives from First Nation communities and the Governments of Manitoba and Ontario plan to submit a proposal to UNESCO in 2011 (Lindsay, 2008).

Legislation and Policy Basis

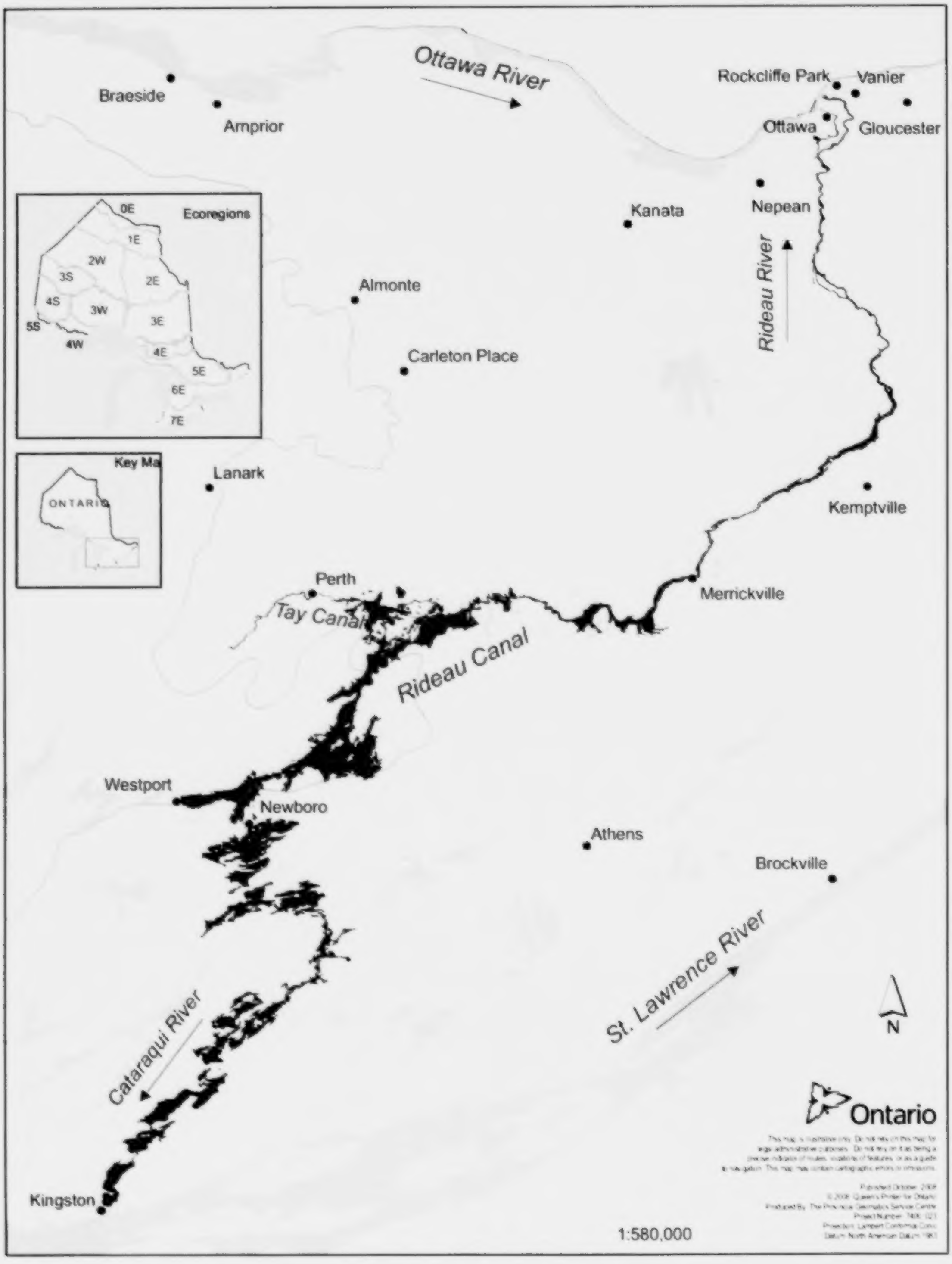
Each World Heritage Site falls under the sovereign control and legislation of the sponsoring jurisdiction. As stated in Article 4 of the *World Heritage Convention*, parties to the Convention must ensure the identification, protection, conservation, presentation, and transmission to future generations of the cultural and natural heritage situated in its territory (UNESCO, 1972). In Canada, the *National Parks Act* is commonly used to protect World Heritage Sites. The Rideau Canal World Heritage Site is protected through the *Historic Sites and Monument Act*.

Protection Goal and/or Objectives

The goal of the *World Heritage Convention* is to properly identify, protect, conserve, and present the world's cultural and natural heritage through the inclusion of sites on the World Heritage List. The *World Heritage Convention*:

- Defines the type of cultural or natural sites which are to be considered.
- Sets out the duties of a country in identification, protection, and preservation of the sites.

Figure 4.9. The Rideau Canal World Heritage Site in Ontario in relation to Ecoregion boundaries.



- Sets out the obligations of a country to regularly report on the condition of the sites.
- Encourages countries to increase public appreciation of the sites.

Selection Criteria

The criteria for the inclusion of a site on the World Heritage List are described in the *Operational Guidelines for the Implementation of the World Heritage Convention* (UNESCO, 2005a). The criteria have been revised regularly by the World Heritage Committee to match the evolution of the world heritage concept itself. A property has outstanding universal value when the site:

1. Represents a masterpiece of human creative genius.
2. Exhibits an important interchange of human values over a span of time or within a cultural area of the world, on developments in architecture or technology, monumental arts, town planning, or landscape design.
3. Bears a unique or at least exceptional testimony to a cultural tradition or to a civilization that is living or has disappeared.
4. Is an outstanding example of a type of building or architectural or technological ensemble, or landscape that illustrates a significant stage or significant stages in human history.
5. Is an outstanding example of a traditional human settlement, land-use, or sea-use which is representative of a culture or cultures, or human interaction with the environment especially when it has become vulnerable under the impact of irreversible change.
6. Is directly or tangibly associated with events or living traditions, with ideas or beliefs, or with artistic and literary works of outstanding universal significance (a criterion used only in exceptional circumstances, or together with other criteria).
7. Contains superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance.
8. Is an outstanding example representing major stages of the Earth's history, including the record of life, significant ongoing geological processes in the development of landforms, or significant geomorphic or physiographic features.
9. Represents an outstanding example of significant ongoing ecological and biological processes in the evolution and development of terrestrial, fresh water, coastal and marine ecosystems, and communities of plants and animals.
10. Contains the most important and significant natural habitats for *in-situ* conservation of biological diversity, including those containing threatened species of outstanding universal value from the point of view of science or conservation (UNESCO, 2005a:20).

Properties nominated under the first six criteria must meet the condition of authenticity, which is the truthful and credible expression of cultural value through a variety of attributes including:

- Form and design.
- Materials and substance.
- Use and function.
- Traditions, techniques, and management systems.
- Location and setting.
- Language and other forms of intangible heritage.
- Spirit and feeling.
- Other internal and external factors (UNESCO, 2005a:21).

All properties must meet the conditions of integrity defined as *"a measure of the wholeness and intactness of the natural and/or cultural heritage and its attributes"* (UNESCO, 2005a). Each property is assessed to determine the extent to which it:

- Includes all elements necessary to express its outstanding universal value.
- Is of adequate size to ensure the complete representation of the features and processes which convey the property's significance.
- Suffers from adverse effects of development and/or neglect (UNESCO, 2005a:22).

The application for a site to be inscribed on the World Heritage List must come from the country itself. UNESCO makes no recommendations for listing. The application must include a plan describing how the site is and will be managed and protected. The World Heritage Committee meets once a year to review nominated sites on the basis of technical evaluations. These independent evaluations of proposed cultural and natural sites are provided by two advisory bodies, the International Council on Monuments and

Sites and the IUCN. Once selected, a site is added to the World Heritage List (UNESCO, 2005a).

Management Objectives and/or Guidelines

Under the auspices of the *World Heritage Convention*, conservation is an ongoing process with a mission to:

- Protect cultural and natural heritage by encouraging the signing of the *World Heritage Convention* by countries.
- Encourage the nomination of sites to the World Heritage List within countries national territory.
- Encourage the establishment by countries of management plans and the reporting of the state of conservation.
- Provide technical assistance and professional training to countries to safeguard World Heritage Sites.
- Provide emergency assistance to sites in immediate danger.
- Support World Heritage Site conservation public awareness-building activities.
- Encourage local population participation in cultural and natural heritage preservation.
- Encourage the conservation of cultural and natural heritage through international cooperation (UNESCO, 2005b:3).

The World Heritage Committee is responsible for the implementation of the *World Heritage Convention* and makes the final decision on whether a site is accepted for inclusion on the World Heritage List. Equally, the Committee examines reports produced on a regular basis on the state of conservation of listed sites, and can ask a signatory country to the *World Heritage Convention* to take action when a site is not being properly managed or risk having it deleted from the World Heritage List (UNESCO, 2005b).

Historically, countries have taken their responsibility for World Heritage Sites seriously. Where necessary, the World Heritage Committee is alerted by individuals, NGOs, or other groups to possible dangers to a site. If the alert is justified, and the problem serious enough, the site is placed on the *List of World Heritage Sites in Danger* (UNESCO, 2007d). This list is designed to call attention to natural or human-made conditions that threaten the characteristics that qualified the site for the World Heritage List. Endangered sites on this list are entitled to particular attention and emergency action. Detailed selection criteria for this list are available in the *Operational Guidelines for the Implementation of the World Heritage Convention* (UNESCO, 2005a). As of August 2007, 30 properties were included on the *List of World Heritage Sites in Danger* (UNESCO, 2007a).

The Degree of Protection for World Heritage Sites and the Corresponding IUCN Protected Area Management Strategy: A Preliminary Assessment

World Heritage Site designations are protected under the auspices of a range of legal mechanisms by sponsoring jurisdictions. For example, the Rideau Canal is 'fully protected' through the *Historic Sites and Monument Act*, and may qualify as an IUCN Category III protected area. A significant proportion of upland and shoreline areas are privately owned, and Parks Canada employs collaborative management agreements with stakeholders to protect natural asset values along this historic waterway (Mitchell et al., 2002; Swinnerton and Buggey, 2004). Collectively, these various protection mechanisms could qualify the Rideau Canal World Heritage Site as an IUCN Category V protected area.

Key Contact(s)

The World Heritage Centre UNESCO
7, place de Fontenoy
75352 Paris 07 SP France
Telephone: 33-1-45 68 15 71 Fax: 33-1-45 68 55 70
Website: *http://whc.unesco.org*
Information: *wh-info@unesco.org*

Canadian Commission for UNESCO
350 Albert Street, P.O. Box 1047
Ottawa, Ontario K1P 5V8
Telephone: 613-566-4414 or 1-800-263-5588
Fax: 613-566-4405
Website: *www.unesco.ca/en/activity/culture/heritagesites.aspx*

Parks Canada
25 Eddy Street
Gatineau, Quebec K1A 0M5
Phone: 819-994-2691 Fax: 819-997-0835
Website: *www.pc.gc.ca/progs/spm-whs/index_E.asp*
Information: *information@pc.gc.ca*

4.5 Important Bird Areas

Introduction

The first Important Bird Area (IBA) program was initiated by BirdLife International in Europe in 1985 and a directory of European Important Bird Areas was published in 1989. Since then, Important Bird Area programs have been established in Asia, Africa, Europe, the Middle East, and the Americas. The Canadian program was launched in 1996 by Canadian BirdLife International partners – Nature Canada and Bird Studies Canada (IBA Canada, 2004). An Important Bird Area is a site of international importance for the conservation of birds and other biodiversity (BirdLife International, 2006). A site may contain essential habitat for one or more species of breeding or non-breeding birds or include threatened species, endemic species, species representative of a biome, or exceptional concentrations of birds (IBA Canada, 2004). The program is inclusive and identifies important sites for all groups of birds. It integrates aquatic and terrestrial habitat conservation by protecting seabird, shorebird, land bird, and

Table 4-4. Important Bird Areas in Ontario.

Important Bird Area	Area (ha)
Akimiski Strait	91,000
Albany River Estuary	94,000
Amherst Island	11,000
Aylmer WMA	210
Beamer Conservation Area	32
Big Piskwanish Point	4,000
Cabot Head	14,400
Cape Henrietta Maria	92,800
Carden Plain	20,200
Chantry Island	40
Clear Creek	400
Dundas Valley and Dundas Marsh	2,000
East Point	15,000
Eastern Lake St. Clair	92,400
Ekwan to Lakitusaki Shores	82,400
Greater Rondeau Area	8,700
Hamilton Harbour Waterbird Colonies	1,050
Hannah Bay	20,000
Holiday Beach/Big Creek CA	900
Lac Deschênes	2,700
Lake Huron, Quarry Bay	1,500
Lake of the Woods Sand Spit Archipelago	1,200
Leslie Street Spit	700
Limestone Islands	100
Little Otter Creek Complex	700
Long Point Peninsula and Marshes	24,100
Longridge Point and Associated Coastline	2,000
Lower Detroit River	15,500
Luther Marsh	6,000
Manitoulin Island North Shore	78,800
Matchedash Bay	1,200
Moose River Estuary	6,600
Napanee Limestone Plain	200,000
Netitishi Point	3,600
Niagara River Corridor	2,800
Niskibi Cape	167,300
Norfolk Forest Complex	4,900
North Point	4,200
Nottawasaga Island	10
Owen Channel	3,100
Pelee Island Archipelago	2,400
Pelee Island Natural Areas	7,700
Pen Islands	38,000
Pigeon Island	10
Pittock Reservoir	900
Point Abino	300
Point Pelee	4,000
Port Colborne	50
Port Franks Forested Dunes	6,200
Presqu'ile Provincial Park	940
Prince Edward Point	37,100
Severn River Coastline	62,500
Shagamu River and Area	93,600
Skunk's Misery Complex	1,000
Southwest Elgin Forest Complex	2,500
Spring Bay	14,000
Springwater Conservation Area	200
St. Mary's River Complex	35,800
Sutton River Coastline	64,500
The Cousins	5
The Watchers	18
Thedford Flats	1,000
Three Sisters Islands	10
Tiny Marsh	1,000
Twelve Mile Creek Headwaters	1,400
West End of Lake Ontario	130,000
Wildwood Gull Roost	1,100
Winisk River Estuary	72,100
Wolfe Island	23,000
Wye Marsh	1,100

Source: BSC (2007)

waterfowl habitat. The program is cooperative and community-based and relies on grassroots involvement to develop and implement conservation plans. As of March 2006, approximately 8,000 sites in 178 countries had been designated as Important Bird Areas (BirdLife International 2006). In Canada, 552 Important Bird Areas have been identified by the Canadian Wildlife Service, including 70 sites (encompassing 1,689,430 ha) in Ontario (BSC, 2007) (Table 4-4, Fig. 4-10).

Legislation and Policy Basis

An Important Bird Area is a designation created to highlight the importance of key habitat. The Important Bird Area has no legal standing on its own – protection and conservation is achieved under the auspices of existing programs. For example, protection may be achieved through conservation easements, land purchases, and voluntary stewardship initiatives. In Ontario by virtue of their location, Important Bird Areas in National Parks are protected through the *National Parks Act*, in Provincial Parks by the *Provincial Parks and Conservation Reserves Act*, in Migratory Bird Sanctuaries through the *Migratory Birds Convention Act*, and in Conservation Authority Conservation Areas by the *Conservation Authorities Act*. In addition, some Important Bird Areas are located on private land.

The Important Bird Area program complements existing bird conservation initiatives in Canada, such as the North American Bird Conservation Initiative, *Canadian Shorebird Conservation Plan*, *Western Hemisphere Shorebird Reserve Network*, the *North American Waterfowl Management Plan* (NAWMP), and Partners in Flight - Canada (IBA Canada, 2004).

Protection Goal and/or Objectives

The goals of the Important Bird Area program are to:

- Identify a network of sites that conserve the natural diversity of Canadian bird species and are critical for the long-term viability of naturally occurring bird populations.
- Determine the type of protection or stewardship required for each site, and ensure the conservation of sites through partnerships between local stakeholders who develop and implement appropriate on-the-ground conservation plans.
- Establish ongoing local involvement in site protection and monitoring (IBA Canada, 2004).

Selection Criteria

Sites are identified using a set of standardized and internationally agreed-upon criteria. Important Bird Areas are identified and classified into one of four categories (Chaundry-Smart and Wilcox, 2001):

- **Category 1:** Threatened species.
- **Category 2:** Restricted-range species.
- **Category 3:** Biome-restricted/representative species.
- **Category 4:** Congregatory species.

In addition, Important Bird Areas can be identified according to their global, continental, or national significance (based on specific bird population thresholds). More than one category can be applied to each Important Bird Area.

Category 1: Threatened Species

The general objective of this category is to identify sites that regularly provide habitat for significant numbers of a species that is threatened or at risk of extinction. The criteria for global, continental, and national levels of significance are as follows:

- **Globally Threatened Species:** The site regularly hosts significant numbers of a globally threatened bird species – birds listed as critical, endangered, or vulnerable in *Threatened Birds of the World* (BirdLife International, 2000).
- **Continentally Threatened Species:** The site regularly hosts significant numbers of a bird species, subspecies, or a biogeographical population that is threatened in North America.
- **Nationally Threatened Species:** The site regularly hosts significant numbers of a bird species, subspecies, or a biogeographical population that is threatened in Canada – birds listed as endangered, threatened, or of special concern by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC).

In general, the threshold for identifying an Important Bird Area site is 1% of the population at risk. In some situations, however, it may be appropriate to apply thresholds lower than the 1% of the population. Regular occurrence at a site is defined as the yearly presence of a species. Where several years of data are available, the most recent five years are used.

Category 2: Range Restricted/Species

Range restricted species have a limited distribution and are vulnerable to habitat loss and disturbance. Although some endemic species are abundant within their range and are not considered threatened, it is important to include the best or representative sites inhabited by these species within the Important Bird Area network. Subspecies or disjunct populations restricted to small areas are also a concern. Criteria include:

- **Globally Restricted Range:** The site regularly hosts significant numbers of a bird species whose global breeding range is less than 50,000 km^2 (5,000,000 ha). In Canada, only the Whooping Crane (*Grus americana)* qualifies as a species with a restricted range at the global level. However, there may be as many as 16 distinctive subspecies in Canada with breeding ranges of less than 50,000 km^2.
- **Continentally Restricted Range:** The site contains species with small total breeding ranges (i.e., greater than 50,000 km^2 but less than 100,000 km^2) and important populations within North America (i.e., more than 50% of the global distribution). No bird species in Canada is at risk at the continental scale.
- **Nationally Restricted Range:** The site contains species that are not biome-restricted, but which have small total breeding ranges (i.e., greater than 100,000 km^2 but less than 250,000 km^2) and host important populations within North America (i.e., more than 50% of the North American distribution). At the national level, distinctive subspecies with breeding ranges of less than 50,000 km^2 are also included. Four species and 14 subspecies meet the national level criteria.

For the purposes of this category, a Canadian target of at least one site for each restricted-range population is proposed. If a choice of sites is possible, then the 'best available' site(s) for the species should be selected first.

Category 3: Biome-Restricted/Representative Species

The objective of this category is to identify sites that host assemblages of birds whose breeding ranges are largely restricted to, or representative of, North American biomes. To date, no biome-restricted/ representative species have been identified. For the purposes of the Canadian Important Bird Area program, biomes are classified by Bird Conservation Region, as defined by the North American Bird Conservation Initiative Mapping Subcommittee. Bird species associated with each Bird Conservation Region will be used by the IBA program to identify biome-restricted/representative species.

Category 4: Congregatory Species

The Congregatory Species category covers sites that host large concentrations of birds during one or more seasons. Marine/lacustrine sites, terrestrial sites, stop-over sites, and sites over which migrants congregate (e.g., before gaining height in the thermals) are included in this category. Qualified sites support single species congregations, congregations of many species, or species for which population thresholds are unknown (general congregatory thresholds). Global, continental, or national level criteria may apply. General congregatory thresholds are defined in Table 4-5.

For single species congregations, a site qualifies as an Important Bird Area if it is known or thought to hold an average of 1% or more of the biogeographic population of the species. The criteria include:

- **Globally Significant:** The site is known or thought to host more than 1% of the global or North American population of a species.
- **Continentally Significant:** The site is known or thought to host more than 1% of the continental biogeographical population (flyway or other population) of a species.
- **Nationally Significant:** The site is known or thought to provide habitat for more than 1% of the Canadian population (flyway or other population) of a species.

Table 4-5. General congregatory thresholds for the establishment of Important Bird Areas.

	Condition: Minimum Number of Birds Present		
Category	Global	Continental	National
Congregations of Waterfowl: The site is regularly an important concentration site for waterfowl during any portion of the year. Concentrations refer to those present over a short period of time rather than over an entire season.	20,000	15,000	10,000
Congregations of Seabirds: The site (terrestrial or marine) is regularly an important concentration site for seabirds during any portion of the year. Concentrations refer to those present over a short period of time rather than over an entire season.	20,000	15,000	10,000
Congregations of Shorebirds: The site is regularly an important migratory stopover or wintering area for shorebirds. Concentrations refer to those present over a short period of time rather than over an entire season.	20,000	15,000	10,000
Congregations of Raptors: The site is a regular migratory 'bottleneck' for raptors. Concentrations refer to seasonal totals rather than those occurring over a brief period of time.	20,000	15,000	10,000
Congregations of Wading Birds: The site is an important concentration site for wading birds (herons, bitterns, and cranes) during any portion of the year. Concentration refers to those present over a short period of time rather than an entire season.	10,000	5,000	500
Congregations of Migratory Land Birds: The site is a regular migratory stopover or corridor for migratory land birds (other than raptors). Sites nominated should contain exceptional numbers and or diversity of migratory land birds.	Large concentration	—	—

Source: Chaundry-Smart and Wilcox (2001).

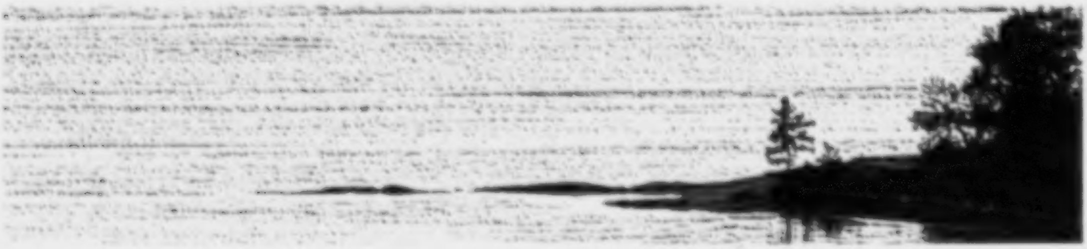


Image by F. Kor

Table 4-5. General congregatory thresholds for the establishment of Important Bird Areas.

Category	Condition: Minimum Number of Birds Present		
	Global	Continental	National
Congregations of Waterfowl: The site is regularly an important concentration site for waterfowl during any portion of the year. Concentrations refer to those present over a short period of time rather than over an entire season.	20,000	15,000	10,000
Congregations of Seabirds: The site (terrestrial or marine) is regularly an important concentration site for seabirds during any portion of the year. Concentrations refer to those present over a short period of time rather than over an entire season.	20,000	15,000	10,000
Congregations of Shorebirds: The site is regularly an important migratory stopover or wintering area for shorebirds. Concentrations refer to those present over a short period of time rather than over an entire season.	20,000	15,000	10,000
Congregations of Raptors: The site is a regular migratory 'bottleneck' for raptors. Concentrations refer to seasonal totals rather than those occurring over a brief period of time.	20,000	15,000	10,000
Congregations of Wading Birds: The site is an important concentration site for wading birds (herons, bitterns, and cranes) during any portion of the year. Concentration refers to those present over a short period of time rather than an entire season.	10,000	5,000	500
Congregations of Migratory Land Birds: The site is a regular migratory stopover or corridor for migratory land birds (other than raptors). Sites nominated should contain exceptional numbers and or diversity of migratory land birds.	Large concentration	—	—

Source: Chaundry-Smart and Wilcox (2001).

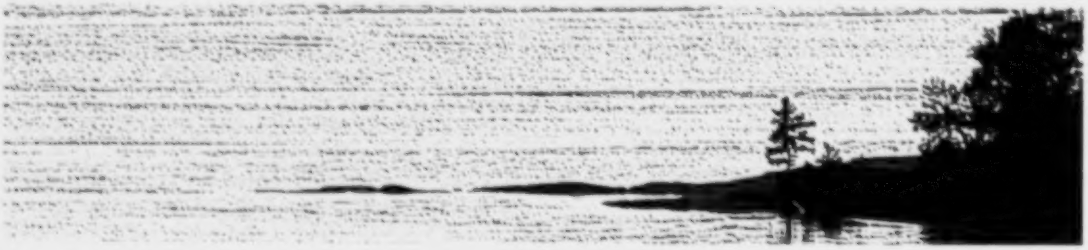
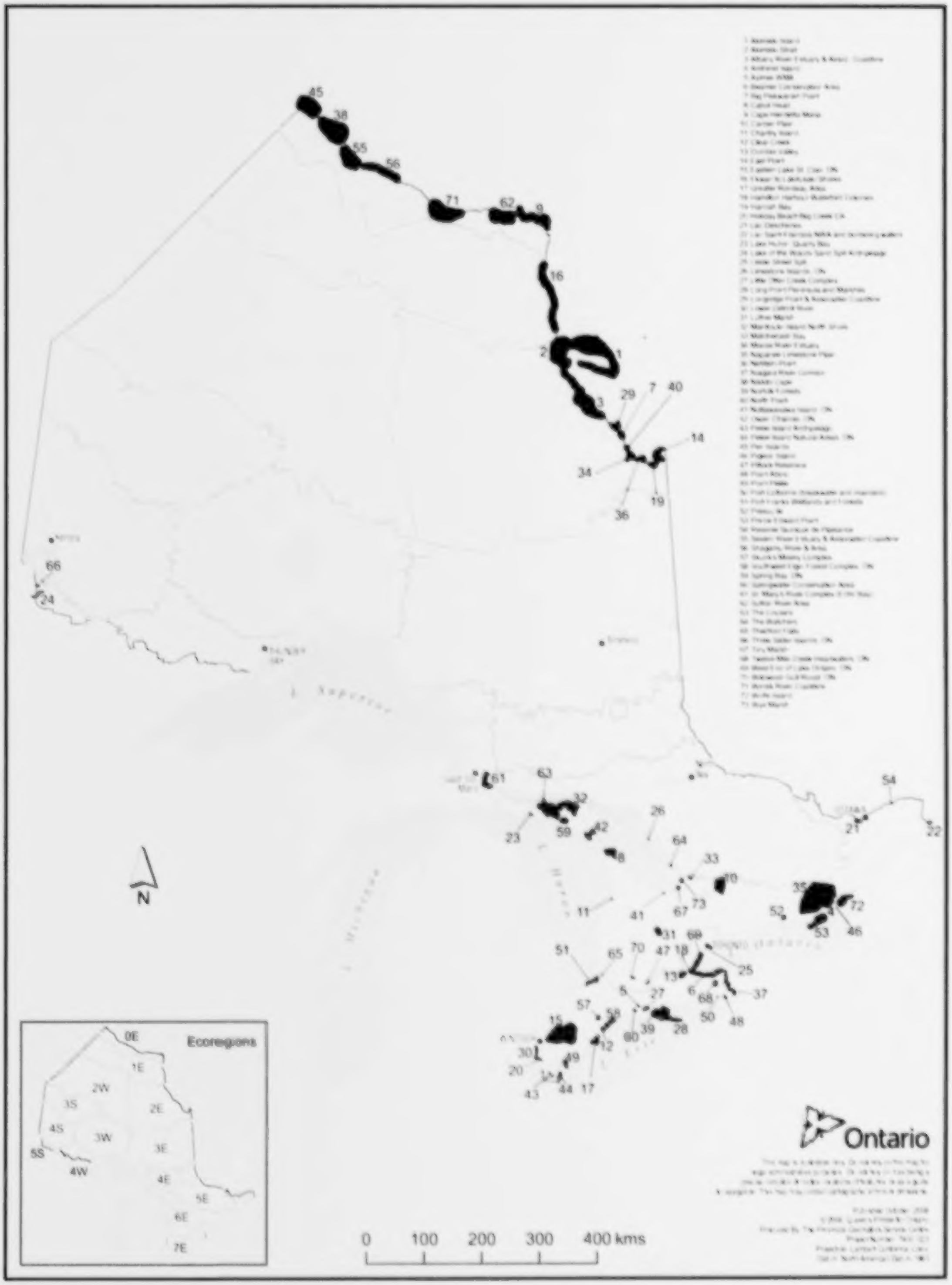


Image by P. Kor

Figure 4.10. Important Bird Areas in Ontario in relation to Ecoregion boundaries.

Akimiski Island (located in Nunavut), Lac Saint-Francois NWA and Bordering Waters (located in Quebec), and Reserve Faunique de Plaisance (located in Quebec) are included on this map because of their close proximity to Ontario's ecosystems.



Management Objectives and/or Guidelines

Once a site has been identified as an Important Bird Area, it is added to the list of Important Bird Area sites and included in a Canadian directory (an 'electronic directory' featuring one page site summaries is available on the IBA web site). Next, federal, provincial, and territorial partners work with local stakeholders to determine the type of protection or stewardship required for the site. Important Bird Area community conservation planners across Canada work closely with local communities to develop conservation plans. In most cases, an Important Bird Area conservation plan is implemented by local stakeholder groups at each site. In support of local initiatives, Nature Canada and Bird Studies Canada offer supporting grants through the IBA Community Action Fund. The fund is used to support high priority conservation initiatives identified in the conservation planning phase (IBA Canada, 2004).

The *Presqu'ile IBA Management Plan* was the first Important Bird Area conservation plan completed in Ontario. The plan was prepared by the Presqu'ile IBA Stewardship Steering Committee (comprised of local people) and contains background information, conservation targets, a list of threats to targets, and strategies to manage the threats. The plan provides the primary land owner, Ontario Parks, with clear direction for conserving the birds that depend on the park's habitat (IBA Canada, 2002).

The Degree of Protection for Important Bird Areas and the Corresponding IUCN Protected Area Management Strategy: A Preliminary Assessment

There is no legal mechanism for the protection of Important Bird Area sites in Ontario. Therefore, on its own the designation does not qualify an area for inclusion in the IUCN classification system. An Important Bird Area can attain 'fully protected' status under the auspices of a range of legal mechanisms employed by a number of agencies and organizations, and may qualify for more than one IUCN category. For example, the Point Pelee IBA is located in Point Pelee National Park, which qualifies as a Category II protected area.

Key Contact(s)

BirdLife International
Wellbrook Court
Girton Road, Cambridge CB3 0NA
United Kingdom
Telephone: +44 (0)1223 277 318
Fax: +44 (0)1223 277 200
Website:
www.birdlife.org/action/science/sites/index.html
Information: *birdlife@birdlife.org*

Nature Canada
85 Albert St., Suite 900
Ottawa, Ontario K1P 6A4
Telephone: 613-562-3447
Fax: 613-562-3371
Website: *www.natureconservancy.ca*
Information: *info@naturecanada.ca*

Bird Studies Canada
P.O. Box 160, 115 Front Rd.
Port Rowan, Ontario N0E 1M0
Telephone: 519-586-3531
Fax: 519-586-3532
Website: *www.bsc-eoc.org/*
Information: *birdmap@bsc-eoc.org*

Important Bird Areas of Canada
Website: *www.ibacanada.com*

Image by P.A. Gray

5. National Designations and Mechanisms

Introduction

Throughout Canada a number of national designations serve to protect natural and cultural heritage areas and values. Nine of these national designations are relevant to Ontario:

- National Parks.
- National Marine Conservation Areas.
- National Historic Sites.
- Canadian Heritage Rivers.
- Migratory Bird Sanctuaries.
- National Wildlife Areas.
- *Oceans Act* Marine Protected Areas.
- Marine Wildlife Areas.
- National Capital Commission Lands.

Image by P. Kor

5.1 National Parks

Introduction

Canada's National Parks program was formally initiated in 1885 with the protection of the Banff mineral hot springs (Parks Canada, 1997). National Parks protect ecosystems that represent Canada's natural heritage for the benefit of present and future generations. Parks Canada strives to maintain the integrity of ecosystems in each park while providing opportunities for public enjoyment and education. The National Parks program is designed to protect 'representative areas' in each of Canada's 39 terrestrial natural regions (Parks Canada, 1994:24, 1997). Although a representative park has not yet been established in every natural region, 43 National Parks have been created. In Ontario, five National Parks have been established in three of seven natural regions (Parks Canada, 1997) (Table 5-1, Fig. 5-1).

Table 5-1. National Parks in Ontario.

National Park	Year Established	Area (ha)
St. Lawrence Islands National Park	1914	870
Point Pelee National Park	1918	1,500
Georgian Bay Islands National Park	1929	2,560
Pukaskwa National Park	1971/78	187,800
Bruce Peninsula National Park	1987	15,400
Total		208,130

The 1971 version of the *National Parks System Planning Manual* provided the first comprehensive management framework for establishing a system of parks across Canada (Parks Canada, 1971). It was subsequently updated in 1979 and 1994 during which time National Parks policy and planning evolved significantly (Parks Canada, 1979, 1994). For example, the 1994 policy improves upon the 1979 policy by providing more scope for collaborative work outside park boundaries with managers responsible for adjacent lands and waters in recognition that ecosystem boundaries often extend beyond the park.

In this context, some National Parks are preparing greater park ecosystem plans (Roszell, 1996).

In 1998, the Government of Canada appointed the Panel on the Ecological Integrity of Canada's National Parks to recommend how best to ensure that ecological integrity is maintained across the system of National Parks. The Panel reported that a number of natural values in Canada's National Parks are in jeopardy, and provided 127 recommendations to help Parks Canada reverse the trend (Parks Canada Agency, 2000a, b). In response, Parks Canada embarked upon a nation-wide consultation process and completed an action plan to address the Panel's recommendations. The action plan focused on:

- Making ecological integrity central in legislation and policy.
- Building partnerships for ecological integrity.
- Planning for ecological integrity.
- Renewing Parks Canada to support the ecological integrity mandate (Parks Canada 2001a:3).

Legislation and Policy Basis

The *National Parks Act* governs the establishment and management of National Parks. The most current version of this Act strengthens the ecological integrity clause. In fact, 'ecological integrity' is the cornerstone of management programs implemented under the *National Parks Act*, which states that *"maintenance or restoration of ecological integrity, through the protection of natural resources and natural processes shall be the first priority of the Minister when considering all aspects of the management of parks"* (Parks Canada, 2001a:5). Ecological integrity is defined as a *"condition that is determined to be characteristic of its natural region and likely to persist, including abiotic components and the composition and abundance of native species and biological communities, rates of change and supporting processes"* (Parks Canada, 2001a:5).

Image by P.A. Gray

Where new National Parks are established in conjunction with the settlement of land claims of Aboriginal peoples, final boundaries of the park as well as harvesting rights and involvement of Aboriginal peoples in park planning and management are proposed in legislation according to the terms of the land claim agreement. In the interim, the area may be set aside as a National Park Reserve under the *National Parks Act* and traditional hunting, fishing, and trapping activities by Aboriginal peoples are permitted to continue. Other interim measures also may include local Aboriginal peoples' involvement in National Park Reserve management (Parks Canada, 1994:29). In addition to natural features, many National Parks contain areas that have cultural and historical significance. These areas are managed according to the *Cultural Resource Management Policy* (Parks Canada, 1994:24).

Protection Goal and/or Objectives

Maintenance of ecological integrity is the overriding goal of the National Parks program. Achievement of this goal requires that Parks Canada work closely with industry, non-government organizations, individuals, and other government agencies in support of ecosystem management programs that extend beyond park boundaries. The primary objective of the National Parks program is *"to protect for all time, representative natural areas of Canadian significance in a system of national parks, and to encourage public understanding, appreciation, and enjoyment of this natural heritage so as to leave it unimpaired for future generations"* (Parks Canada, 1994:25). National Parks also contribute to other goals of the Government of Canada, including efforts designed to:

- Preserve the integrity, health, and biodiversity of Arctic ecosystems.
- Strengthen and build environmental relationships.
- Provide timely, accurate, and accessible information to enable Canadians to make environmentally sensitive decisions.
- Help develop an environmentally literate society.
- Strengthen environmental science with special emphasis on understanding regional ecosystems.
- Ensure that all operations and procedures meet or exceed national targets for sustaining the environment (Parks Canada, 1994:25).

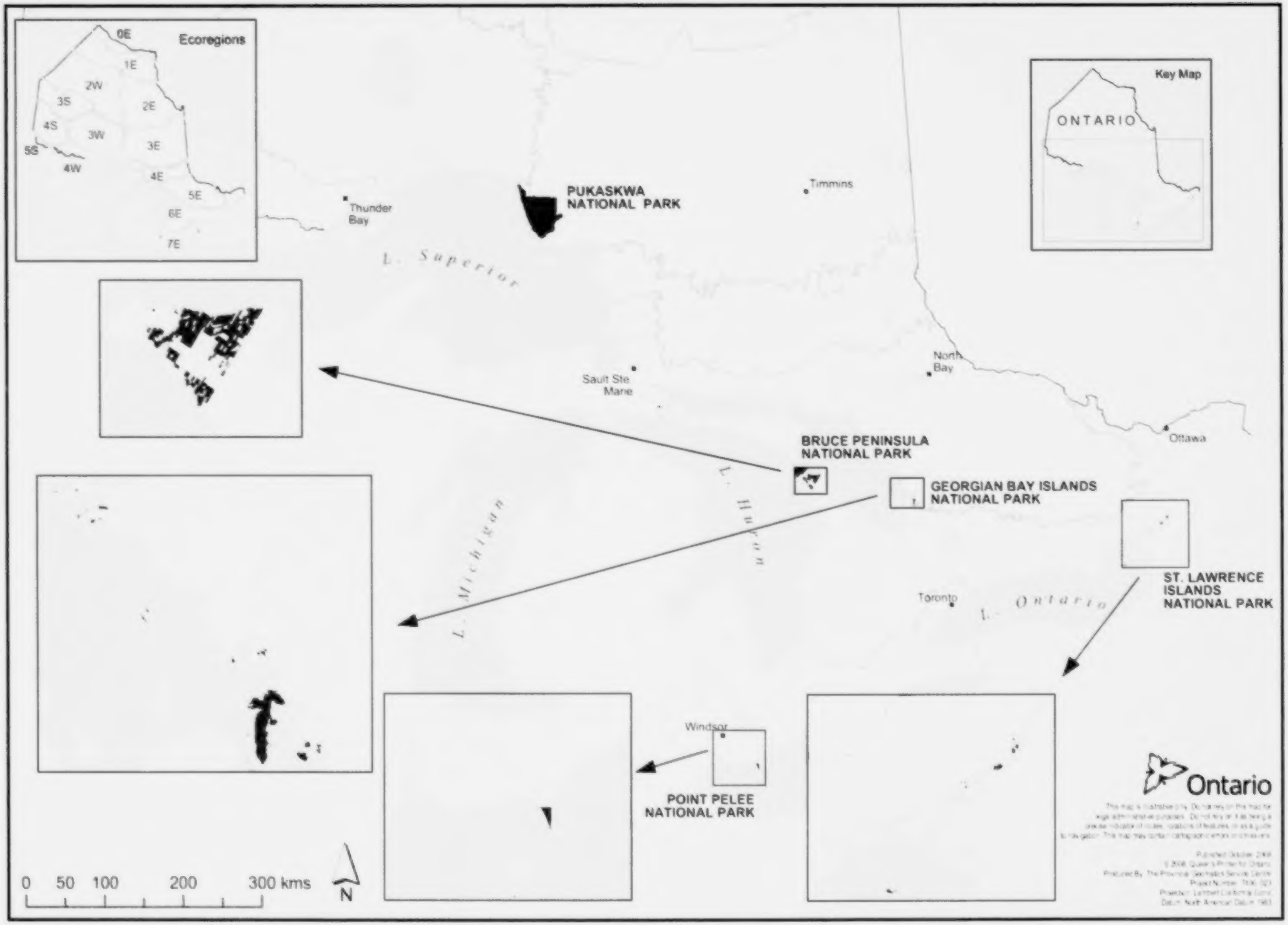


Figure 5-1. National Parks in Ontario in relation to Ecoregion boundaries.

Selection Criteria

Candidate National Parks are selected in consultation with provincial and/or territorial governments, other federal agencies, non-government organizations, affected Aboriginal peoples, and the interested public (Parks Canada, 1994:27). Given that each situation is unique, the steps leading to the creation of a new National Park reflect individual circumstances. The normal sequence is:

- Identify representative natural areas.
- Select a potential National Park.
- Assess park feasibility.
- Negotiate a park agreement and obtain clear title.
- Establish a new National Park in legislation (Parks Canada, 1997).

Representative natural areas qualify for consideration in unrepresented natural regions if:

- The area portrays the geology, physiography, vegetation, wildlife, and ecosystem diversity characteristic of the natural region.
- The area's ecosystems are healthy and in a natural state. If a candidate area is degraded, stressed, or significantly modified, it must have the potential for being restored to a natural state (Parks Canada, 1994:26).

In selecting potential National Parks, consideration is given to:

- The extent to which the area represents the ecosystem diversity of the natural region.
- The potential for supporting viable populations of wildlife species native to the natural region.
- The ecological integrity of the area's ecosystems and surrounding lands.
- The occurrence of exceptional natural phenomena, and rare, threatened, or endangered wildlife and vegetation.
- The existence of significant cultural heritage features or landscapes.
- Opportunities for public understanding, education, and enjoyment.
- Competing land and resource uses.
- Possible threats to the long-term sustainability of the area's ecosystems.
- Complementarity with the objectives of existing or planned protected natural areas of other jurisdictions in the region.
- The potential for establishing an adjacent National Marine Conservation Area that is representative of its marine region.
- The implications of Aboriginal rights, comprehensive land claims, and treaties with Aboriginal peoples.
- International criteria for National Parks (Parks Canada, 1994:26).

Management Objectives and/or Guidelines

The *National Parks Act* precludes most extractive activities such as mining and logging, but does provide for limited forms of traditional subsistence activities, such as hunting and fishing by local people for an agreed upon period in new National Parks where there are no outside alternatives. Management plans provide the framework for decision-making within a National Park. The *National Parks Act* requires public consultation during the preparation of a park management plan and stipulates that the maintenance of ecological integrity through the protection of natural resources is the first priority in consideration of park zoning and visitor use. Management plans for National Parks with international or other national designations (e.g., World Heritage Site, Biosphere Reserve, Ramsar Convention Site, Canadian Heritage River, or National Historic Site) include strategies for protection and promotion of the values that define these additional designations (Parks Canada, 1994:30).

Zoning is an important technique employed by Parks Canada. Areas are classified and managed according to ecosystem and cultural resource protection requirements, and their capability and suitability to provide opportunities for visitor experiences. Parks Canada uses five zones:

Zone I-Special Preservation:
Preservation is the key consideration in this zone. Specific areas or features are preserved if they contain or support unique, rare, or endangered natural or cultural features, or are among the best examples of the features that represent a natural region.

Motorized access is not permitted in the Special Preservation Zone. In cases where the fragility of the area precludes public access, every effort is made to provide park visitors with appropriate off-site programs and exhibits that describe the special characteristics of the zone.

Zone II – Wilderness:
The perpetuation of ecosystems with minimal human interference is the key consideration in Wilderness Zones. These zones are extensive, representative of a natural region, and are conserved in a wilderness state.

Wilderness Zones offer opportunities for visitors to experience park natural and cultural heritage values through outdoor recreation activities that are dependent upon and within the capacity of the park's ecosystems. These activities (e.g., backcountry canoe tripping) require few, if any, basic services and facilities. Opportunities for outdoor recreation activities are encouraged only when they do not conflict with wilderness protection objectives. Accordingly, motorized access is not permitted, with the possible exception of strictly controlled air access in remote northern parks.

Zone III – Natural Environment:
Maintained as natural areas, the Natural Environment Zones provide opportunities for visitors to experience a park's natural and cultural heritage values through outdoor recreation activities requiring minimal services and facilities of a rustic nature. While motorized access may be allowed, it is controlled. Public transit is preferred. Where appropriate, park management plans define provisions for terminating or limiting private motorized access.

Zone IV – Outdoor Recreation:
Outdoor Recreation Zones accommodate a broad range of opportunities for understanding, appreciation, and enjoyment of the park's heritage values and related essential services and facilities. Motorized access is permitted, but controlled to minimize impact on the ecological integrity of the park.

Zone V – Park Services:
Communities in existing National Parks contain a concentration of visitor services and support facilities. Specific activities, services, and facilities in this zone are defined and directed by a community planning process. Major park operation and administrative functions also may be accommodated in this zone. Wherever possible, Parks Canada locates these activities to maintain regional ecological integrity (Parks Canada, 1994:31-32).

Collectively, Zones I and II constitute the majority of the area in all but the smallest National Parks, and make the greatest contribution to the conservation of ecosystem integrity. Parks Canada policy also provides for the designation of culturally and environmentally sensitive areas to complement the zoning system. This designation can be applied to areas which may require special recognition or management not provided through zoning designation or may be applied to areas in any zone. The designation is useful in order to focus and communicate objectives for research, protection, and visitor experience for particular areas (Parks Canada, 2007a).

The Degree of Protection for National Parks and the Corresponding IUCN Protected Area Management Category: A Preliminary Assessment

National Parks qualify as 'fully protected' areas because protection is the primary objective, the commitment is legislated, they are protected year-round in perpetuity, and they exclude industrial activities and large-scale developments. When applying IUCN categories at the park level, National Parks in Ontario could be classified as Category Ia, Ib, or II protected areas. With an established zoning system like the one used by Parks Canada, there may be opportunities to apply the categories at a finer scale. For example, the Preservation Zone qualifies as a Category Ia protected area, the Wilderness Zone qualifies as a Category 1b protected area, and the Natural Environment Zone qualifies as a Category II protected area.

Key Contact(s)

Parks Canada
25 Eddy Street
Gatineau, Quebec K1A 0M5
Telephone: 819-994-2691
Fax: 819-997-0835
Website: *www.pc.gc.ca/progs/np-pn/index_E.asp*
Information: *information@pc.gc.ca*

5.2 National Marine Conservation Areas

Introduction

Parks Canada is committed to establishing a system of National Marine Conservation Areas designed to represent the full range of Canada's marine ecosystems, coastal zones, and Great Lakes (Parks Canada, 1994:48-49). National Marine Conservation Areas (NMCA) are *"marine areas managed for sustainable use and containing smaller zones of high protection"* (Parks Canada, 2006a). These areas are primarily associated with large, open ecosystems characterized by rapid rates of change, where many fish and wildlife species undertake long-range migrations associated with feeding and/or reproductive cycles. National Marine Conservation Areas include the sea bed, its subsoil, and the overlying water column (Parks Canada, 1994:48) and may include wetlands, estuaries, islands, and other coastal lands (Parks Canada, 2006a). The water column is the primary context for most marine ecosystems because it:

- Sustains primary production and provides for most of the habitat requirements of aquatic flora and fauna through the movement of nutrients, food, and their larvae.
- Provides a transportation medium for pollutants that enter the water from the atmosphere and through terrestrial run-off, rendering these areas vulnerable to a range of potentially harmful downstream effects (Parks Canada, 1994:47).

Canada's oceanic assets and the Great Lakes are divided into 29 marine regions, each of which warrants representation in the National Marine Conservation Area system (Parks Canada, 1994:49). Ontario is represented by seven marine regions: Hudson Bay, James Bay, Lake Superior, Georgian Bay, Lake Huron, Lake Erie, and Lake Ontario (CEAC, 1991). Currently two NMCAs have been established in Canada and a third is planned. Fathom Five National Marine Park is located in Ontario (Box 5-1, Fig. 5-2) and the Saquenay-St. Lawrence Maine Park is located in Quebec. Planning for the Lake Superior National Marine Conservation Area is nearing completion (Office of the Prime Minister, 2007; Parks Canada, 2007b).

Box 5-1. National Marine Conservation Areas in Ontario.

Originally a Provincial Park, Fathom Five (Fig. 5-2) (11,300 ha) was designated as Canada's first National Marine Conservation Area through an agreement between Canada and Ontario in 1987 (Duffus and Dearden, 1993; McClellan, 1992; McComb, 1997).

In 1997, the federal Department of Canadian Heritage and the Ontario Ministry of Natural Resources created a Regional Committee and initiated a study to determine the level of support for the establishment of a National Marine Conservation Area adjacent to the north shore of Lake Superior. In October 2000, the Regional Committee submitted detailed recommendations to the Minister of Canadian Heritage (Regional Committee, 2001).

In October 2007 the Government of Canada announced the creation of the Lake Superior National Marine Conservation Area, which extends from Thunder Cape at the tip of Sleeping Giant Provincial Park in the west, to Bottle Point just east of Terrace Bay and out to the Canada-US boundary. It includes the waters of Black Bay and Nipigon Bay and encompasses over 1,000,000 ha of lake bed and overlying waters as well as islands, shoals, and some mainland (Office of the Prime Minister, 2007). It is the largest freshwater Marine Conservation Area in the world (Nature Canada, 2007).

Legislation and Policy Basis

National Marine Conservation Areas are formally established by the Parliament of Canada in accordance with the *Canada National Marine Conservation Act*. Parks Canada takes the lead role in developing cooperative arrangements with all concerned parties for the complementary use and management of resources within a National Marine Conservation Area. National Marine Conservation Areas are established pursuant to agreements with the concerned provincial and/or territorial governments, federal departments and agencies, and with Aboriginal organizations, as required. The agreement describes the boundaries of the NMCA and stipulates the role(s) of concerned government departments and agencies, any local communities and affected user groups, as well as interested non-government organizations and the public in the cooperative stewardship, planning, and management of the area (Parks Canada, 1994:51-52).

The Crown, in Right of Canada, owns all land including the sea or lake bed and its subsoil, within a National Marine Conservation Area. Private lands and interests are acquired by negotiated settlement, and where appropriate term interests are allowed to expire. When a new NMCA is established in conjunction with the settlement of land claims, the final boundaries, as well as harvesting rights and involvement of Aboriginal peoples in planning and management, are proposed in legislation according to the terms of the land claim agreement. In the interim, the area may be set aside as a National Marine Conservation Area Reserve under the *Canada National Marine Conservation Areas Act* and traditional hunting, fishing, and other marine resource-based activities by entitled Aboriginal peoples are permitted to continue (Government of Canada, 2002; Parks Canada, 1994:52).

In addition to natural features, National Marine Conservation Areas can contain significant cultural resources that are managed according to the *Cultural Resource Management Policy* (Parks Canada, 1994:53). Additional legislation used to govern NMCAs include the *National Parks Act* and the *Species at Risk Act*. Within Canada, a number of other marine protected areas are managed through Parks Canada and Environment Canada, namely *Oceans Act* Marine Protected Areas (MPAs) (see Section 5.7 on page 138) and Marine Wildlife Areas (see Section 5.8 on page 140), respectively. A federal marine protected areas strategy has been developed to clarify the roles and responsibilities of each government agency, establish a more systematic approach to planning and establishment, enhance collaboration, increase awareness, and link to continental and global marine networks (DFO, 2005).

Protection Goal and/or Objectives

A *National Marine Parks Policy* was published in 1986 and later revised as a *National Marine Conservation Areas Policy* (Parks Canada, 1994:46). The long-term goal of the *National Marine Conservation Areas Policy* is to represent each of Canada's 29 marine natural regions in the National Parks system. The principal objective is "*…to protect and conserve for all time National Marine Conservation Areas of Canadian significance that are representative of the country's ocean environments and the Great Lakes, and to encourage public understanding, appreciation and enjoyment of this marine heritage so as to leave it unimpaired for future generations*" (Duffus and Dearden, 1993; Parks Canada, 1994:49). In addition, objectives of National Marine Conservation Areas include to:

- Represent oceanic and Great Lakes environment diversity.
- Maintain life support systems and ecological processes.
- Preserve biodiversity.
- Act as ecologically sustainable use models.
- Promote ecological research and monitoring.
- Protect endangered species and their habitats.
- Protect cultural resources.
- Provide marine areas interpretation for the purpose of conservation, education, and visitor enjoyment (Yurick and Mageau, 2006).

Selection Criteria

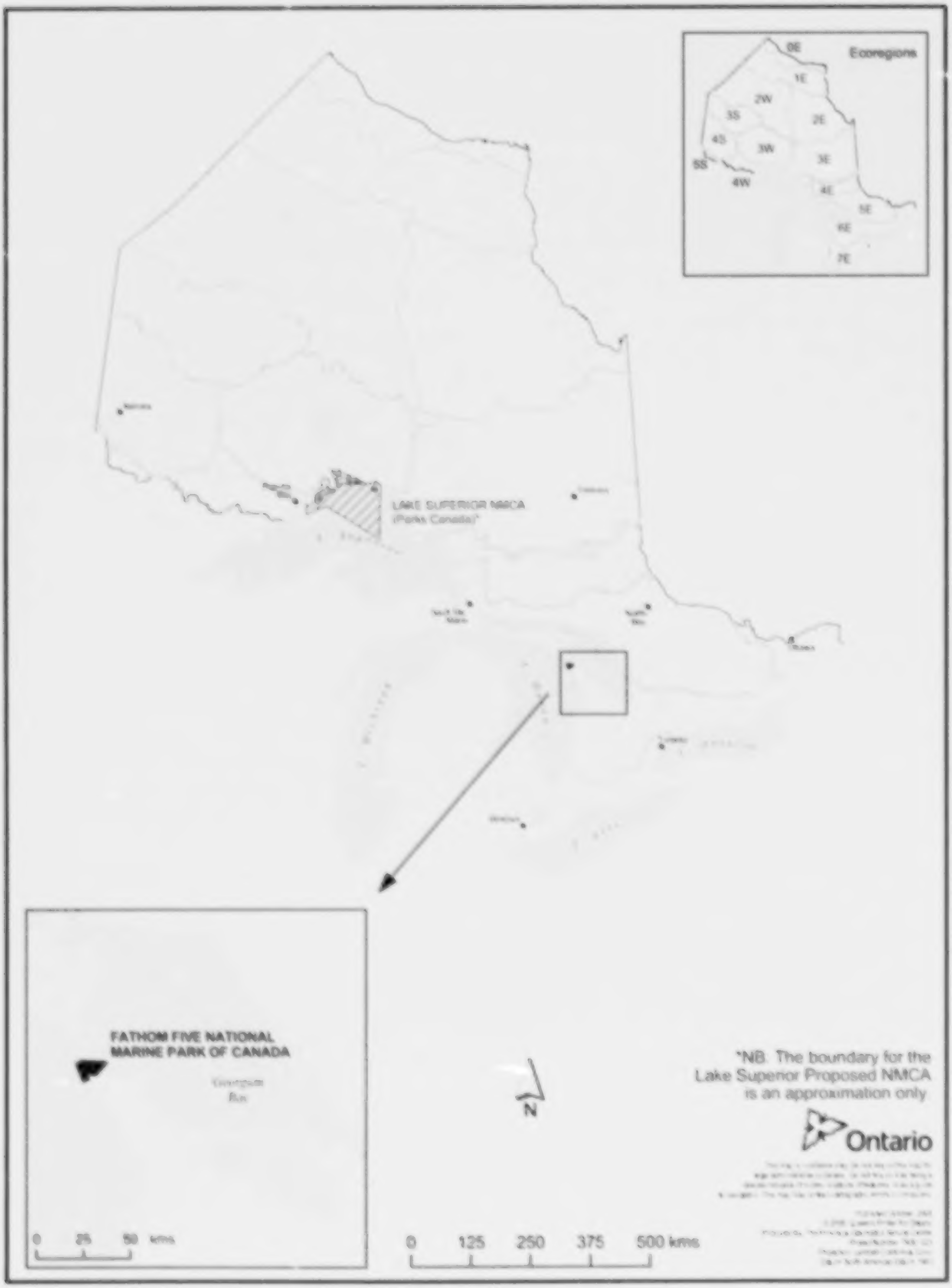
Given that each situation is unique, steps used to create a National Marine Conservation Area reflect individual circumstances. The normal sequence is to:

- Identify representative marine areas.
- Select a potential National Marine Conservation Area.
- Assess the National Marine Conservation Area feasibility.
- Negotiate a National Marine Conservation Area agreement.
- Establish the new National Marine Conservation Area in legislation (Parks Canada, 2006a).

The following criteria are considered when identifying potential NMCAs:

- Geologic features (i.e. cliffs, beaches, islands, and underwater troughs or basins).
- Marine features (i.e. tides, ice, current, and salinity).
- Marine and coastal habitats (i.e. wetlands, estuaries, and protected areas).
- Biology (i.e. plants, fish, seabirds, and mammals).
- Archaeological and historic features (Parks Canada, 2006a).

Figure 5-2. National Marine Conversation Areas in Ontario in relation to Ecoregion boundaries.



*NB. The boundary for the
Lake Superior Proposed NMCA
is an approximation only.

Image by T.J. Beechey

In selecting a potential National Marine Conservation Area, consideration is given to a range of factors, including:

- Quality of regional representation.
- Comparative importance for maintaining biodiversity.
- Protection of endangered species critical habitat.
- Outstanding natural or cultural features.
- Current or anticipated marine protected areas.
- Minimizing conflict with resource users.
- Jeopardizing the sustainability of marine ecosystems.
- Aboriginal claims and treaties implications.
- Education and enjoyment potential.
- Ecological research and monitoring value (Parks Canada, 2006a).

The feasibility of establishing a National Marine Conservation Area is assessed during a collaborative process that can involve many participants, including federal, provincial, and territorial governments, communities, stakeholders, and Aboriginal peoples (Parks Canada, 2006a). In proposing the boundaries of a potential National Marine Conservation Area, every effort is made to establish an area with a size and configuration that:

- Protects a wide diversity of marine ecosystems representative of the marine region.
- Accommodates the habitat requirements of viable populations of marine species that are native to the marine region.
- Does not fragment sensitive, highly diverse, or productive marine communities.
- Protects exceptional marine phenomena, and rare, threatened, or endangered marine flora and fauna.
- Includes important sites for ecological research and monitoring.
- Offers opportunities for public understanding and enjoyment.
- Results in minimum long-term disruption of the social and economic life in the surrounding region.
- Does not encompass permanent communities (Parks Canada, 1994:51).

Management Objectives and/or Guidelines

National Marine Conservation Areas are almost always associated with large and dynamic open ecosystems where the rates of change associated with many important ecological processes are rapid. Given the open, dynamic nature of aquatic ecosystems and their links to terrestrial ecosystems, management usually involves close collaboration and cooperation between many agencies and organizations (Parks Canada, 1994:51). Instead of attempting to protect marine ecosystems in an unaltered state free of human activity (the primary goal in terrestrial National Parks), management effort in National Marine Conservation Areas is directed towards the conservation of these areas in a manner comparable to the *World Conservation Strategy* prepared by the IUCN/UNEP/WWF in 1980 (Parks Canada, 1994:48). In this context, conservation embraces a number of management techniques, including preservation, maintenance, sustainable use, and restoration. Therefore, protection is attained through management of a range of human activities to ensure the greatest sustainable benefit to present generations while maintaining the potential of the area to meet the needs and aspirations of future generations (Parks Canada, 1994:48).

Fundamentally, an ecosystem approach to management is used as the framework with which programs are developed and implemented. An ecosystem approach to management requires adoption of a holistic view of the natural environment and ensuring that decisions consider the dynamic and interactive nature of ecosystems, human activities within ecosystems, and their finite capacity to recover from stress caused by human disturbances (Parks Canada, 1994:55). An ecosystem approach to management must have:

- Broad-based support.
- Understanding and collaboration among all those who directly use the area or influence the ecological integrity of the National Marine Conservation Area by their activities in the surrounding hinterland.
- Strong partnerships.
- A scientific basis.
- Adequate baseline information about the physical, oceanographic, and biological characteristics (Parks Canada, 1994:55-56).

Management planning is an iterative process, and plans are prepared within five years of the area's proclamation and reviewed and amended as necessary every five years thereafter (Government of Canada, 2002). The goal of the National Marine Conservation Area management plan is to provide for sustainable use of the area consistent with the need to maintain the structure and function of marine ecosystems. Zoning is an essential part of the National Marine Conservation Area management plan. Zones are employed to define and map the different levels of protection and use permitted in the National Marine Conservation Area and to separate potentially conflicting human activities (Parks Canada, 1994:53). Parks Canada employs three zones in NMCAs:

Zone I – Preservation Zone:
An area is included in the Preservation Zone when management objectives include protecting:

- Habitats deemed critical to the maintenance of depleted, vulnerable, threatened, or endangered species.
- Habitats of more common species and communities that are particularly sensitive to human disturbances.
- Unique or best examples of a natural feature.
- Cultural resources of national historic significance.
- Areas considered important for long-term environmental monitoring or ecological research.

Visitor use is not normally permitted in the Preservation Zone, but in certain cases where public education benefits are high, provisions may be made for limited and closely supervised visitation. Permanent facilities are not permitted unless they are essential for public safety or for the protection of natural features. Renewable resource harvesting is not permitted.

Zone II – Natural Environment Zone:
An area is designated a Natural Environment Zone when management objectives involve:

- Creating a buffer zone around the Preservation Zone in order to enhance protection of its special habitats or features.
- Protecting highly representative areas that provide opportunities for non-consumptive recreational use and public education in as natural a setting as possible.
- Conducting environmental monitoring and research projects in which public education is an integral part of the study program.

Permitted activities include research, public education, and low intensity outdoor recreation. Where practical and safe, the use of non-motorized transportation is encouraged. Only minimal facility development is permitted. Renewable resource harvesting activities, including recreational hunting and fishing, are prohibited in the Natural Environment Zone.

Zone III – Conservation Zone:
Areas are allocated to the Conservation Zone when management objectives involve:

- Renewable resource harvesting activities, aquaculture, and marine transportation.
- Provision of opportunities for a broad spectrum of outdoor recreation and public education.

In the Conservation Zone, provision can be made for reasonable use consistent with maintaining the structure and function of marine ecosystems. Hunting may be permitted in designated areas on a conservative basis, subject to ongoing population assessments and the need to maximize visitor safety requirements. Permanent facilities for National Marine Conservation Area administration, public education, visitor services, and accommodation are permitted (Parks Canada, 1994:54).

While the *National Marine Conservation Areas Policy* stresses conservation of marine resources, it recognizes that certain activities (including commercial fishing, traditional animal harvesting by indigenous peoples, and shipping) can occur without threatening the values that are protected. Prohibited activities include commercial exploitation, extraction or development of nonrenewable resources, and ocean dumping (Parks Canada, 1994:52).

The Degree of Protection for National Marine Conservation Areas and the Corresponding IUCN Protected Area Management Category: A Preliminary Assessment

National Marine Conservation Areas are 'fully protected' areas because protection is the primary objective, the commitment is legislated, they are protected year-round in perpetuity, and they exclude industrial activities and large-scale developments. National Marine Conservation Areas could qualify as IUCN Category Ib or II protected areas. With an established zoning system like the one used by Parks Canada, there may be opportunities to apply the categories at a finer scale. For example, the Preservation Zone may qualify as a Category Ib protected area and the Natural Environment Zone may qualify as a Category II protected area.

Image by P.A. Gray

Key Contact(s)

Parks Canada
25 Eddy Street
Gatineau, Quebec
K1A 0M5
Telephone: 819-994-2691
Fax: 819-997-0835
Website:
www.pc.gc.ca/progs/amnc-nmca/index_E.asp
Information: information@pc.gc.ca

5.3 National Historic Sites

Introduction

National Historic Sites represent a range of places that commemorate persons and events that have profound importance to Canadians. These sites represent human creativity, cultural tradition, or are the location of a defining moment in Canada's history (Parks Canada, 2007c). Since the program was inititiated in the early 20th Century, National Historic Sites have been established in a variety of settings in urban, rural or wild places, and reflect Canada's evolving history and heritage. Of 924 National Historic Sites managed and/or monitored by Parks Canada, 257 sites are located in Ontario (Box 5-2) (Parks Canada, 2005).

Legislation and Policy Basis

National Historic Sites are established under authority of the *Historic Sites and Monuments Act* and the *National Parks Act*. Related policies include the *National Historic Sites Policy*, *Cultural Resource Management Policy*, *Historic Canada Policy*, and the *Federal Waterway Policy* (see Parks Canada, 1994).

Box 5-2. National Historic Sites in Ontario.

Included in the National Historic Site designations in Ontario are three Historic Canals – the Rideau Canal, Trent-Severn Waterway, and the Sault Ste. Marie Canal. These canals are managed with the objective of fostering appreciation, enjoyment, and understanding of Canada's Historic Canals (Parks Canada, 1994).

Protection Goal and/or Objectives

The objectives of the National Historic Sites program are to:

- Foster knowledge and appreciation of Canada's past through a national program of historical commemoration.
- Ensure the commemorative integrity of National Historic Sites by protecting and presenting them for the benefit, education, and enjoyment of current and future generations in a manner that respects the significant and irreplaceable legacy represented by these places and their associated resources.
- Encourage and support the protection by others of places of national historic significance that are not administered by Parks Canada (Parks Canada, 1994b:71).

Selection Criteria

To be designated as a National Historic Site one of the following criteria must be met. The site must:

- Exemplify an outstanding creative achievement in concept and design, technology, or planning of a significant stage in the development of Canada.
- Exemplify or symbolize, in whole or in part, a cultural tradition, a way of life, or ideas critical to the development of Canada.
- Be explicitly and meaningfully connected or identified with people who are regarded to be of national historic significance.
- Be explicitly and meaningfully connected or identified with events that are regarded to be of national historic significance (Parks Canada, 2000).

Management Objectives and/or Guidelines

National Historic Sites include:

- National Historic Sites administered by Parks Canada.
- National Historic Sites owned by others.
- National Historic Sites owned by others and cost-shared under the *Historic Sites and Monuments Act* (Parks Canada, 1996).

The cultural and natural assets of these sites are managed to protect and present the legacy they represent. As is the case for National Parks, Parks Canada uses a management planning process to ensure sustainable use of cultural and natural assets. Each plan directs long-term development and operation of the National Historic Site (Parks Canada, 1994).

The Degree of Protection for National Historic Sites and the Corresponding IUCN Protected Area Management Category: A Preliminary Assessment

National Historic Sites qualify as 'fully protected' areas because protection is the primary objective, the commitment is legislated, they are protected year-round in perpetuity, and they exclude industrial activities and large-scale developments. Some National Historic Sites may qualify as IUCN Category III protected areas. The size of the area, the degree of natural heritage protection offered in each, and the nature of the harmonious interaction between nature and culture may provide the determining criteria. The management plan for each site would need to be examined to determine the relationship between the protected values and the IUCN protected area classification.

Key Contact(s)

Parks Canada
25 Eddy Street
Gatineau, Quebec, Canada, K1A 0M5
Phone: 888-773-8888
Website: *www.pc.gc.ca/progs/lhn-nhs/index_E.asp*
Information: *information@pc.gc.ca*

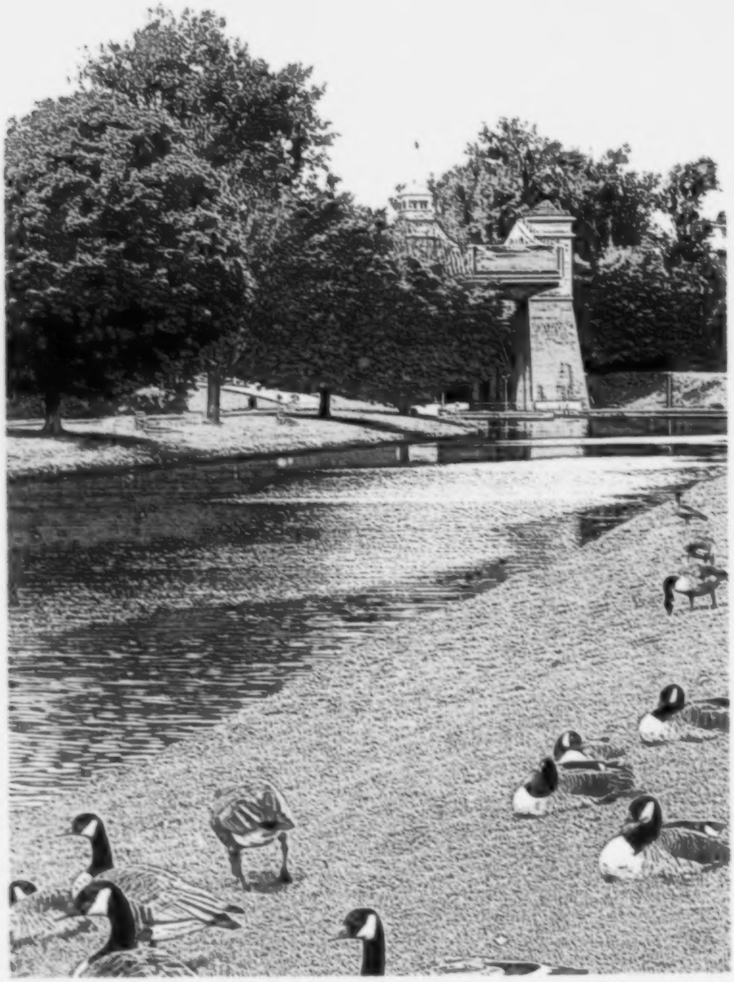


Image by L.S. Withers

5.4 Canadian Heritage Rivers

Introduction

The Canadian Heritage Rivers System (CHRS) was created as a cooperative program between the federal, provincial, and territorial governments to help identify, conserve, and encourage public use of important rivers (Parks Canada, 1984, 2006b). The French River was the first Canadian river designated to the Canadian Heritage Rivers program in 1986. Today, 11 of the 36 designated Canadian Heritage Rivers across Canada flow in Ontario (Table 5-2, Fig. 5-3) (Canadian Heritage Rivers Board, 2006; Canadian Heritage Rivers System, 2007).

Table 5-2. Canadian Heritage Rivers in Ontario.

Designated River	Length (km)
Bloodvein River*, 1998	306
Boundary Waters, 1996	250
Detroit, 2001	51
French, 1986	110
Grand, 1994	627
Humber, 1999	100
Mattawa, 1988	76
Missinaibi, 2004	501
Rideau, 2000	202
St. Mary's, 2000	125
Thames, 2000	273
Total	2,621

* The Bloodvein River is partially located in Manitoba.
Source: Canadian Heritage Rivers Board (2006)

Legislation and Policy Basis

Several pieces of legislation are used to manage the Canadian Heritage River System depending on the government responsible for the land over which the river flows (Canadian Heritage Rivers Board, 1997). For example, rivers protected under the Provincial Parks program are governed by the *Provincial Parks and Conservation Reserves Act*, National Park rivers are cared for with the *National Parks Act*, and Conservation Authority rivers are protected under the auspices of the *Conservation Authorities Act*.

Protection Goal and/or Objectives

Each agency and organization responsible for the care of Canadian Heritage Rivers subscribes to a unique suite of goals and objectives. For example, within the context of the Canadian Heritage Rivers System strategy, Parks Canada works "*to foster protection of outstanding examples of the major river environments of Canada in a cooperative system of Canadian Heritage Rivers, and to encourage public understanding, appreciation and enjoyment of their human and natural heritage*" (Parks Canada, 2006b). The Canadian Heritage Rivers System provides for the recognition, conservation, and management of rivers or sections of rivers with outstanding heritage value such that:

- Their natural heritage is conserved and interpreted.
- Their cultural (human) heritage is conserved and interpreted.
- Recreation and heritage appreciation opportunities are available to all Canadians (Parks Canada, 2001b).

Selection Criteria

Nominated rivers are reviewed according to natural, cultural, recreational, and integrity values (Canadian Heritage Rivers Board, 2001). A river is deemed suitable for inclusion in the Canadian Heritage Rivers System if it meets either the cultural or natural selection guidelines as well as a set of integrity guidelines. Recreational and integrity values are also considered but on their own do not qualify a river as a Canadian Heritage River. The selection guidelines include:

Natural Values

An outstanding Canadian natural heritage value will be recognized when a river and its immediate environment:

- Is an outstanding example of river environments as they are affected by the major stages and processes in Earth's evolutionary history which are represented in Canada.
- Contains outstanding representation of significant ongoing fluvial, geomorphological, and biological processes.
- Contains along its course unique, rare, or

outstanding examples of biotic and abiotic natural phenomena, formations or features, or areas of exceptional natural beauty.
- Contains along its course habitats of rare or endangered species of plants and animals, including outstanding concentrations of plants and animals of Canadian interest and significance.

In addition to meeting one or more of the natural heritage value guidelines, a river must meet all of the following natural integrity guidelines:

- The nominated section is of sufficient size to include significant representations of all of the natural process, features, or phenomena, which give the river its outstanding natural values.
- The nominated section includes those ecosystem components that contribute significantly to the provision of habitat for species in need of protection.
- There are no human-made impoundments within the nominated section.
- All key elements and ecosystem components are unaffected by impoundments located outside the nominated section.
- The water in the nominated section is uncontaminated to the extent that its natural aquatic ecosystem is intact.
- The natural aesthetic character of the nominated section is free of, or not adversely affected by, human developments.

Cultural Values

An outstanding Canadian cultural value will be recognized when a river and its immediate environment:

- Is of outstanding importance owing to its influence, over a period of time, on the historical development of Canada through a major impact upon the region in which it is located or beyond.
- Is strongly associated with persons, events, or beliefs of Canadian significance.
- Contains historical or archaeological structures, works, or sites which are unique, rare, or of great antiquity.
- Contains concentrations of historical or archaeological structures, works, or sites which are representative of major themes in Canadian history.

In addition to meeting one or more of the cultural heritage guidelines, a river must meet all of the following cultural integrity guidelines:

- The nominated section is of sufficient size to include significant representations of all of the features, activities, or other phenomena that give the river its outstanding cultural value.
- The visual character of the nominated section enables uninterrupted appreciation of at least one period of the river's historical importance.
- The key artifacts and sites comprising the cultural values for which the river was nominated are unimpaired by impoundments and human land uses.
- The water quality of the nominated section does not detract from the visual character or the cultural experience provided by its cultural values.

Recreational Values

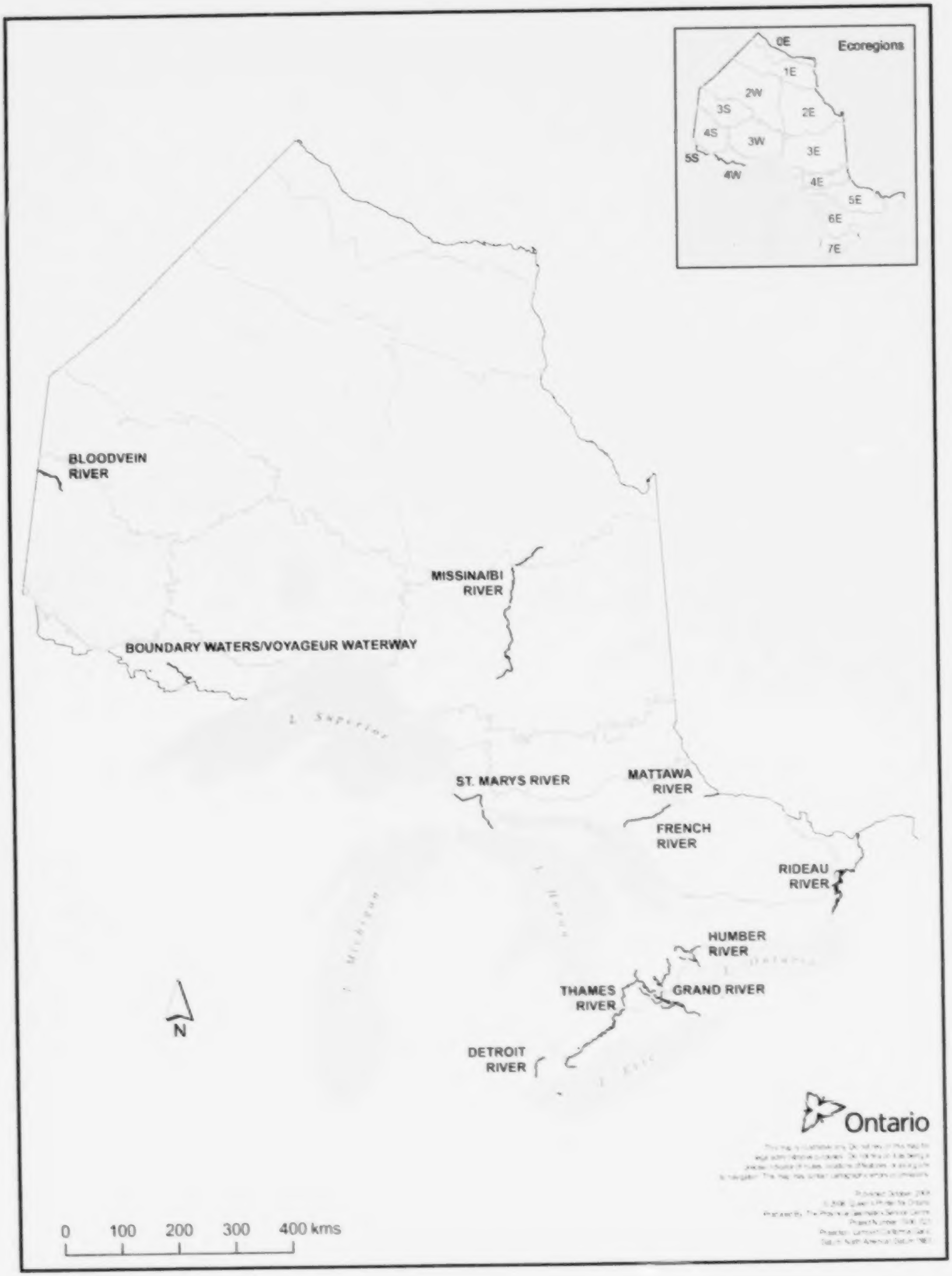
An outstanding Canadian recreational value will be recognized when a river and its immediate environment:

- Possesses a combination of river-related recreational opportunities and related natural and/or cultural values, which together provide a capability for an outstanding recreational experience.
- Include water-based recreational opportunities for activities such as canoeing and other forms of boating, swimming, and angling, and other activities such as camping, hiking, wildlife viewing, and natural and cultural appreciation which may be part of a river-touring experience.
- Include natural values such as natural visual aesthetics, and physical assets such as sufficient flow, navigability, rapids, accessibility, and suitable shoreline.

In addition to meeting all of the recreational value guidelines, a river must meet all of the following recreational integrity guidelines:

- The river possesses water of a quality suitable for contact recreational activities, including those recreational opportunities for which it is nominated.
- The river's visual appearance is capable of providing river travellers with a continuous natural experience, or a combined natural and cultural

Figure 5-3. Canadian Heritage Rivers in Ontario in relation to Ecoregion boundaries.



experience, without significant interruption by modern human intrusions.

- The river is capable of supporting recreational uses without significant loss of, or impact on, its natural and cultural values or its visual character (Parks Canada, 2001b).

Management Objectives and/or Guidelines

The Canadian Heritage Rivers System is created and managed in accordance with the following principles:

- Participation in the Canadian Heritage Rivers System is voluntary.
- Participants in the Canadian Heritage Rivers System will retain their traditional jurisdictional powers over rivers in the system including ownership of land, the choice to nominate a river to the system, and the right to continue to operate and manage designated rivers in accordance with the objectives of the system.
- All participants in the Canadian Heritage Rivers System will respect the rights and concerns of communities, Aboriginal peoples, landowners, and other stakeholders in the nomination, designation, and management of Canadian Heritage Rivers.
- Rivers, or sections of rivers, included in the Canadian Heritage Rivers System will meet the spirit of the heritage and recreational value selection guidelines as set out by the Canadian Heritage Rivers Board.
- River nominations and designations will be jointly approved on the recommendation of the Canadian Heritage Rivers Board, by the Minister(s) of the nominating jurisdiction(s), and by the Minister responsible for Parks Canada.
- Parks Canada will continue to be the lead federal agency in the Canadian Heritage Rivers System and will, through a Secretariat operated on behalf of the Board, provide support for the promotion of the system at the national and international levels and co-ordination of the ongoing monitoring of designated rivers. Parks Canada will also provide assistance to provinces and territories for the preparation of studies and plans leading to the nomination and designation of rivers to the system.
- Provincial and territorial governments will continue to make a substantial commitment to the Canadian Heritage Rivers System by assuming the long-term operational and management costs of having rivers within their jurisdictions designated to the system (Parks Canada, 2001b).

The Degree of Protection for Canadian Heritage Rivers and the Corresponding IUCN Protected Area Management Category: A Preliminary Assessment

The Canadian Heritage River designation is not a regulatory mechanism. Some Canadian Heritage Rivers qualify as 'fully protected' areas based on their location in National Parks, Provincial Parks, Conservation Authority properties, or other designations. Rivers that are 'fully protected' may qualify as IUCN Category I, II, or III protected areas. In addition, it is possible that the collective application of domestic protection mechanism(s) used to care for Canadian Heritage Rivers (e.g., the Grand River) could qualify these designations as IUCN Category V protected areas. The objectives for the management of, and the degree of natural heritage protection offered in, each river system may provide the determining criteria. The management plan for each site would require examination in order to assign IUCN protected areas categories.

Key Contact(s)

Canadian Heritage Rivers Secretariat
c/o Parks Canada
25 Eddy Street
Ottawa, Ontario
K1A 0M5
Telephone: 819-997-4930
Fax: 819-953-4704
Website: www.chrs.ca

5.5 Migratory Bird Sanctuaries

Introduction

In 1916, Great Britain (on behalf of Canada) and the United States signed the *Migratory Birds Convention*, a treaty that obliges both countries to preserve migratory birds and protect them from indiscriminate slaughter. And the *Migratory Birds Convention Act* (1994) enables Environment Canada to meet Canada's obligations outlined in the Convention. Migratory Bird Sanctuaries protect migratory birds against physical disturbance and hunting, a primary threat in the early part of the 20th Century. While the Act does address protection of active nests, it does not address protection of other habitats that are also important to migrating birds. Ninety-two Migratory Bird Sanctuaries, covering approximately 11.2 million ha, are located in Canada. Nine sanctuaries have been established in Ontario (Table 5-3, Fig. 5-4) (CWS and CWF, 2007).

Legislation and Policy Basis

The *Migratory Birds Convention Act* provides for the establishment of Migratory Bird Sanctuaries. Although the Canadian Wildlife Service administers these areas, the Government of Canada does not always own them. Sanctuaries can be designated by Order-in-Council on private lands with the consent of the landowner. A private land sanctuary can be deregulated should the landowner withdraw consent or the area loses its value to migratory birds (Environment Canada, 1991:7-12).

Table 5-3. Migratory Bird Sanctuaries and associated designations in Ontario.

Migratory Bird Sanctuary	Area (ha)
Beckett Creek, 1969	103.0
Chantry Island (IBA), 1957	81.0
Eleanor Island (NWA), 1971	0.6
Hannah Bay (RS, IBA), 1939	29,500.0
Mississippi Lake (NWA), 1959	430.0
Moose River (RS, IBA), 1958	1,457.0
Rideau, 1957	809.4
St. Joseph's Island, 1951	940.0
Upper Canada, 1961	2,663.0
Total	35,984.0

RS = also a Ramsar Convention Site.
NWA = contains or overlaps with a National Wildlife Area.
IBA = contains or overlaps with an Important Bird Area.

Protection Goal and/or Objectives

A principal goal/objective of Migratory Bird Sanctuaries is to protect migratory shorebird, waterfowl, and seabird populations on their staging and breeding grounds. Secondary objectives include research, habitat improvement, and ecotourism (CWS and CWF, 2003).

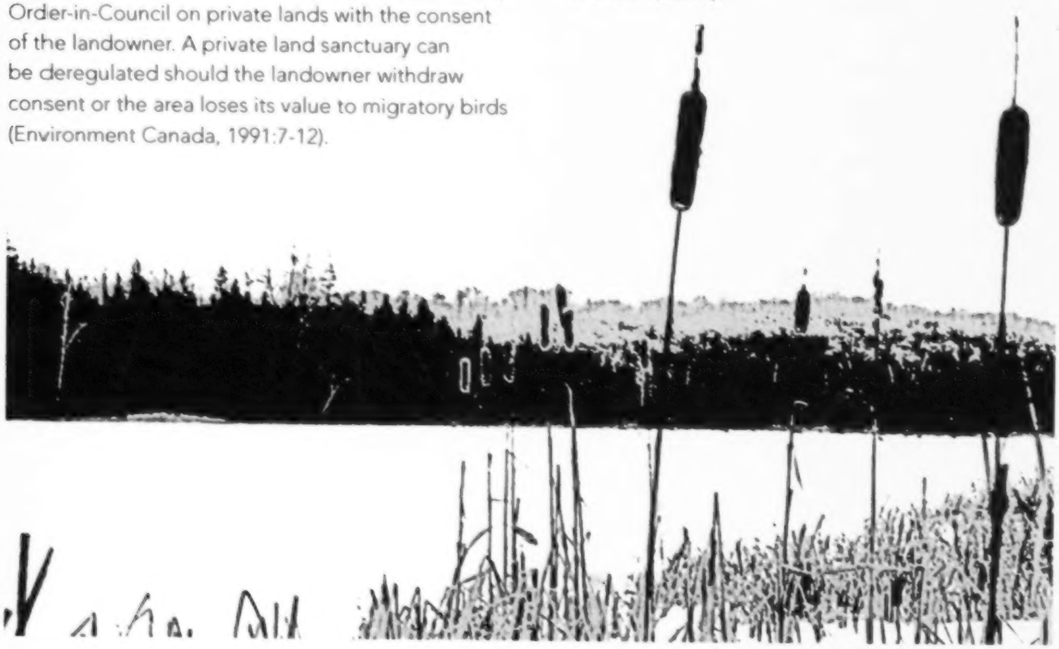


Image by P.A. Gray

Selection Criteria

Candidate areas can be nominated by private citizens and staff from the Canadian Wildlife Service, other government agencies, and non-government organizations. Usually, the Canadian Wildlife Service completes inventories, mapping, and assessments of the habitat of a nominated area. To qualify for consideration as a Migratory Bird Sanctuary, an area must meet one of the following criteria:

- The area supports concentrated populations, for any part of the year, in order to meet one or many essential needs, and which are vulnerable to site-specific threats.
- The area supports populations that occupy habitats of restricted geographical area and are threatened by human disturbance.
- The area regularly supports at least 1% of a population of one species or subspecies.
- The area is crucial in the requirement for the management of regional populations of migratory birds and/or highly qualifies as an educational or interpretative resource (Environment Canada, 2005a).

An area selected as a Migratory Bird Sanctuary requires the consent of the landowner (e.g., other federal departments, the provincial/territorial government, or private landowners) or title to the land. Once designated as a Migratory Bird Sanctuary, the site is 'scheduled' under the *Migratory Birds Convention Act* sanctuary regulations (CWS and CWF, 2003).

Management Objectives and/or Guidelines

Migratory Bird Sanctuaries protect migratory birds against physical disturbance and hunting (CWS and CWF, 2003). With the exception of active nests, sanctuaries do not protect habitat. The status of Migratory Bird Sanctuaries is contingent upon landowner consent and retention of the high value of the site for protecting migratory birds. Regulations under the *Migratory Birds Convention Act* protect migratory birds from:

- Hunting. For example, the regulations forbid a person to carry a firearm in a Migratory Bird Sanctuary or to trap any migratory bird.
- Egg harvesting.
- Removal of nests.
- Pets. Pets are prohibited from running at large (CWS and CWF, 2003; Mosquin et al., 1995; Ward and Killham, 1987).

The regulations only control activities within Migratory Bird Sanctuary boundaries when migratory birds are present. Management includes periodic inspection, enforcement of hunting prohibitions and regulations, and maintenance of signs. In some cases, the CWS prohibits visitors during critical periods (e.g., nesting and molting). In some Migratory Bird Sanctuaries, habitat has been enhanced, and in others research is conducted on the birds. Most Migratory Bird Sanctuaries are not staffed and do not have on-site visitor services (CWS, 1994).

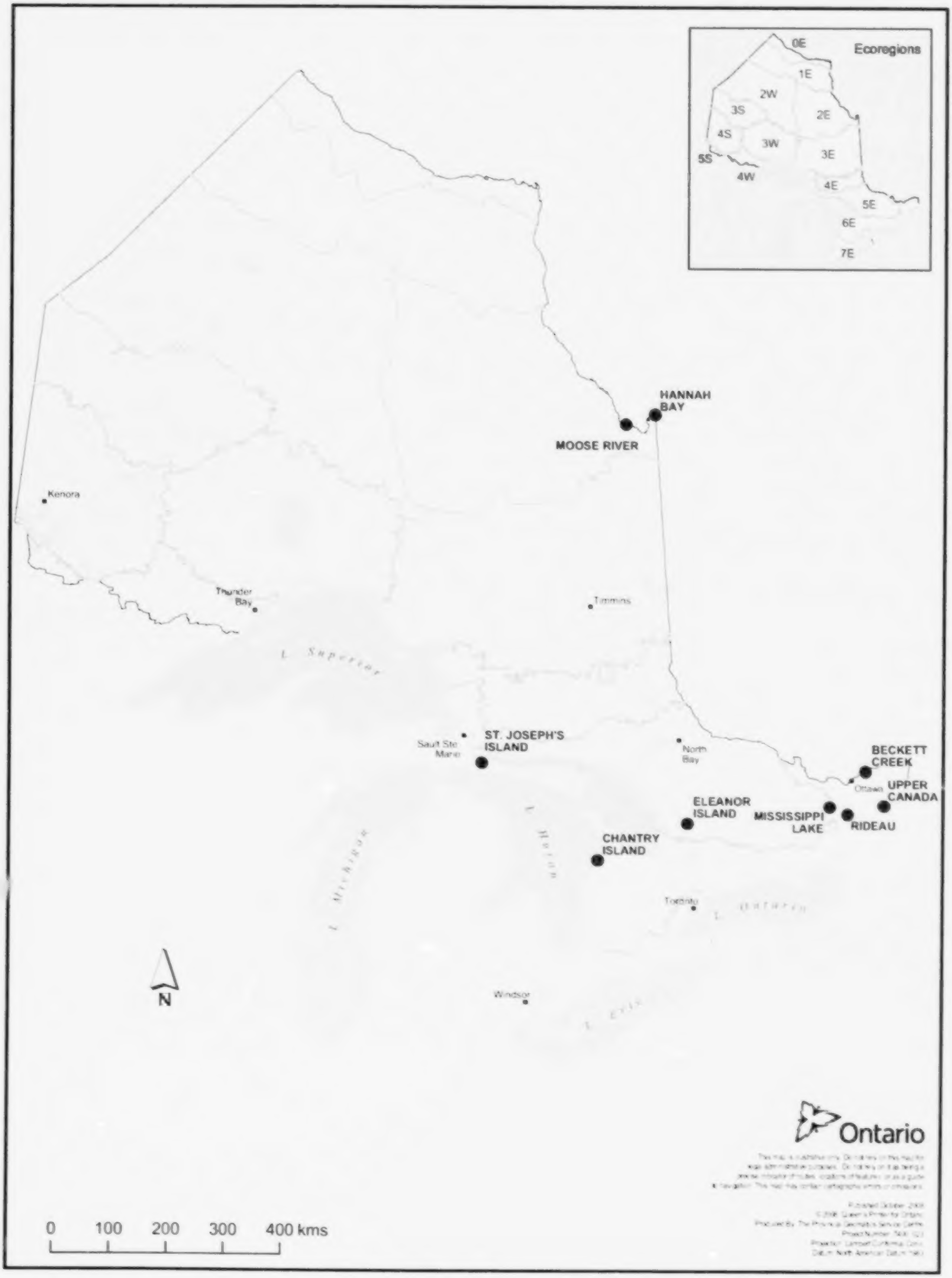
The Degree of Protection for Migratory Bird Sanctuaries and the Corresponding IUCN Protected Area Management Category: A Preliminary Assessment

Some Migratory Bird Sanctuaries qualify as 'partially protected' areas because although protection is the primary objective and the commitment is legislated, they are not protected year-round in perpetuity and they do not necessarily exclude industrial activities and large-scale developments. In other cases, Migratory Bird Sanctuaries are 'fully protected' because they are located in regulated designations such as National Wildlife Areas. These regulated areas may qualify as IUCN Category Ia, II, III or IV protected areas, depending upon the degree of legal or formal protection offered.

Key Contact(s)

Canadian Wildlife Service
Environment Canada
P.O. Box 490
Lambeth Station
London, Ontario
N6P 1R1
Phone: 519-472-6695
Website: www.hww.ca/hww2.asp?cid=4&id=231#sid78
Information: EnviroInfo.Ontario@ec.gc.ca

Figure 5-4. Migratory Bird Sanctuaries in Ontario in relation to Ecoregion boundaries.



5.6 National Wildlife Areas

Introduction

To preserve abundant and diverse wildlife populations, the protection and maintenace of habitat is critical. Accordingly, the Canadian Wildlife Service identifies nationally important wildlife habitat the loss of which would have a direct impact on the Canadian population of one or more wild species (CWS and CWF, 2003). These areas are protected as National Wildlife Areas (NWA) (Environment Canada, 1999). In Canada, about 529,000 ha are protected in 51 National Wildlife Areas (CWS and CWF, 2007), 10 of which are located in Ontario (Environment Canada, 2007a) (Table 5-4, Fig 5-5). In 1966, the CWS began acquiring strategic wetlands under its NWA program. Most NWAs protect migratory bird habitat, and some overlap with Migratory Bird Sanctuaries (Environment Canada, 1991).

Legislation and Policy Basis

The *Canada Wildlife Act*, passed in 1973, authorizes establishment of refuges known as National Wildlife Areas in which migratory birds, other wildlife, and habitat can be protected (CWS and CWF, 2003).

Protection Goal and/or Objectives

The purpose of NWAs, as set out in the *Canada Wildlife Act*, is to conserve essential habitat for migratory birds and, if in the national interest and with the support of the province or territory, other wildlife species. Other goals include public education and research (Statutes of Canada, 1985; Taschereau, 1985).

The initial goal of establishing NWAs was to preserve endangered habitats of migratory birds, but this has since been expanded to include all wildlife (Ward and Killham, 1987). Compared to Migratory Bird Sanctuaries, National Wildlife Areas are smaller, located in southern Canada, and provide a stronger form of protection.

Selection Criteria

Criteria to determine the qualification of a site as a National Wildlife Area are based on the distribution and abundance of migratory birds, wild flora and other fauna, and unique wildlife habitat. A site may be considered if it meets at least one of the following selection criteria:

Table 5-4. National Wildlife Areas in Ontario.

National Wildlife Area	Area (ha)
Big Creek, 1973	773.0
Eleanor Island (MBS),[1] 1971	0.6
Long Point (RS, IBA, BR), 1978	[2]3,200.0
Mississippi Lake (MBS), 1971	235.0
Mohawk Island, 1970	2.0
Prince Edward Point (IBA), 1978	560.0
Scotch Bonnet Island, 1978	0.8
St. Clair (RS, IBA), 1978	285.0
Weller's Bay, 1969	40.0
Wye Marsh (IBA), 1978	47.0
Total	**5,143.4**

[1] RS = also a Ramsar Convention Site.
BR = also a Biosphere Reserve Site.
MBS = contains or overlaps with a Migratory Bird Sanctuary.
IBA = contains or overlaps with an Important Bird Area.

[2] The area encompassed by the National Wildlife Area fluctuates from 3,200 to 3,250 ha due to sand landform features that change in response to water levels and storm events.

Source: Environment Canada (2007a) and N. Patterson, personal communication.

Migratory Birds

- The Area supports a concentrated population of a species or subspecies or a group of species which is concentrated for any portion of the year.
- The Area supports at least 1% of the Canadian population of a species or subspecies or a group of species for any portion of the year, where data on the population is known.
- The Area possesses a high research potential for restoration or enhancement such that migratory bird populations could be increased to meet national population targets.

Wild Flora and Fauna

- The Area supports an appreciable assemblage of rare, vulnerable, threatened, or endangered species or subspecies of plants or animals, or an appreciable number of individuals of any one or more of these species or subspecies.
- The Area has special value for maintaining the genetic and ecological diversity of a region because of the quality and uniqueness of its flora and fauna.

Image by T.J. Beechey

Unique Wildlife Habitats

- The Area is a rare or unusual wildlife habitat, of a specific type in a biogeographic region (Environment Canada, 2005b).

Canadian Wildlife Service staff, the scientific community, NGOs, and private citizens can nominate candidate National Wildlife Areas. A candidate site must contain nationally significant habitat for migratory birds, but with agreement of the province or territory concerned, a National Wildlife Area can be created to protect other species under provincial or territorial jurisdiction as well. Once nominated, the Canadian Wildlife Service completes inventories and maps the area. Once designated as a National Wildlife Area, it is 'scheduled' in the regulations (CWS and CWF, 2003).

Management Objectives and/or Guidelines

The Canadian Wildlife Service works with other federal agencies, provincial/territorial agencies, Aboriginal peoples, private organizations, and individuals to ensure that nationally significant areas are protected as National Wildlife Areas (CWS and CWF, 2003). National Wildlife Area regulations control human activities in NWAs during all seasons, even when migratory birds are absent from the site.

The Canadian Wildlife Service prepares a management plan for each area after the public consultation phase is completed. Plans specify permitted activities and habitat improvement programs. Some areas require little active management, while others require rehabilitation (e.g., planting native vegetation). Permitted activities in National Wildlife Areas can include research, conservation, interpretation, recreation (e.g., hiking, photography, bird watching, sport fishing, and sport hunting), and traditional resource uses such as trapping and hunting (CWS and CWF, 2007). A few NWAs provide special facilities to view wildlife (e.g., the St. Clair National Wildlife Area in southwestern Ontario), but generally, most National Wildlife Areas are not staffed and provide no on-site visitor services (CWS, 1994).

The Degree of Protection for National Wildlife Areas and the Corresponding IUCN Protected Area Management Category: A Preliminary Assessment

National Wildlife Areas qualify as 'fully protected' areas because protection is the primary objective, the commitment is legislated, they are protected year-round in perpetuity, and they exclude industrial activities and large-scale developments. National Wildlife Areas may qualify as IUCN Category Ia, Ib, II, III or IV protected areas based on the degree of protection provided by the *Canada Wildlife Act* and the Wildlife Area Regulations under the *Canada Wildlife Act*.

Key Contact(s)

Canadian Wildlife Service
Environment Canada
P.O. Box 490
Lambeth Station
London, Ontario N6P 1R1
Phone: 519-472-6695
Website: *www.on.ec.gc.ca/wildlife/nwa/eng/index_htm_e.html*
Information: EnviroInfo.Ontario@ec.gc.ca

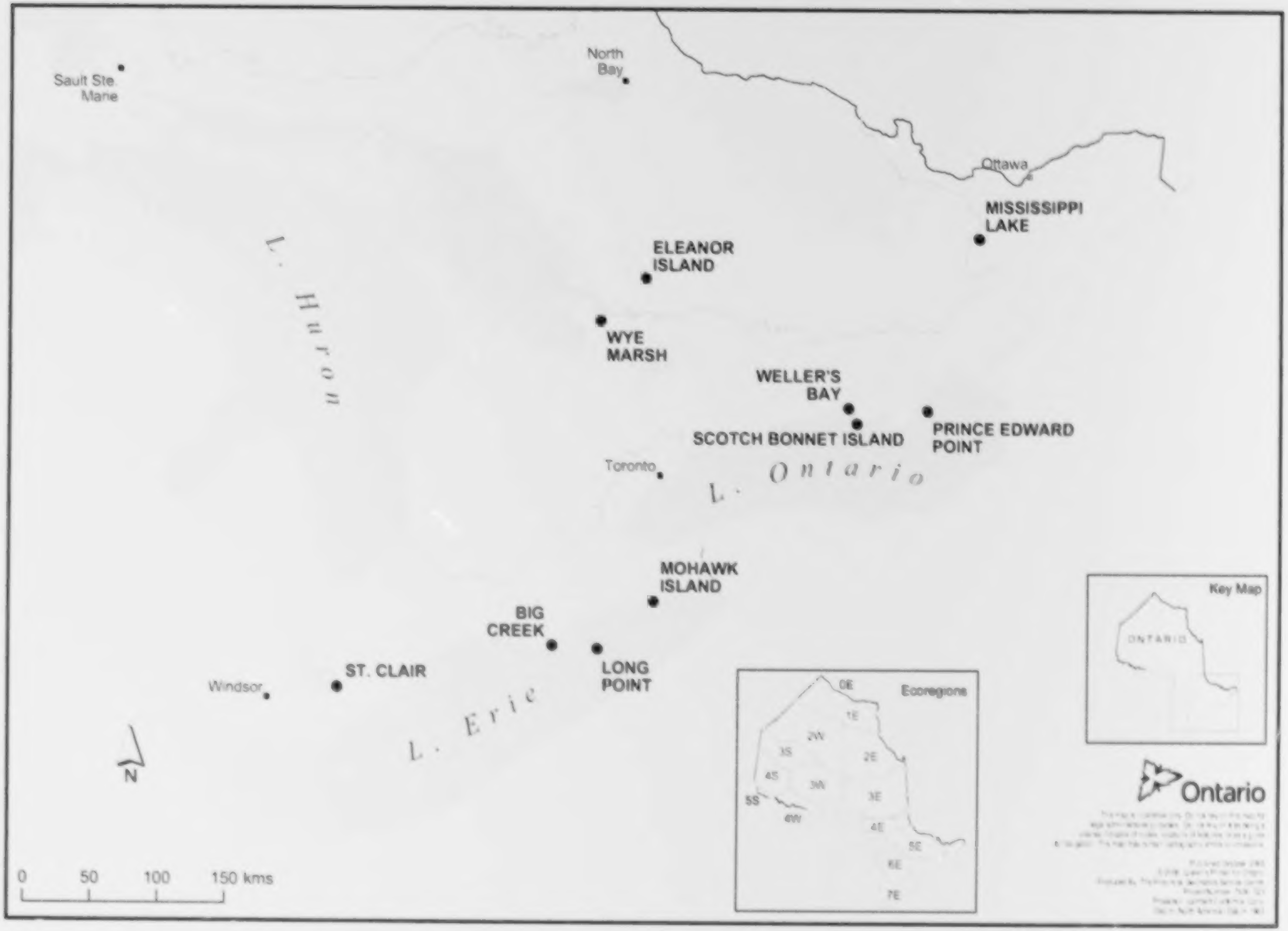


Figure 5-5. National Wildlife Areas in Ontario in relation to Ecoregion boundaries.

5.7 *Oceans Act* Marine Protected Areas

Introduction

The Department of Fisheries and Oceans (DFO) has developed a national framework for the establishment and management of Marine Protected Areas[1], which serve to protect species, habitats, and ecosystems in marine, estuarine, and coastal waters (DFO, 1999). Marine Protected Areas are established to "*conserve and protect unique habitats, endangered or threatened marine species and their habitats, commercial and non-commercial fishery resources (including marine mammals) and their habitats, marine areas of high biodiversity or biological productivity, and any other marine resource or habitat requiring special protection.*" Seven Marine Protected Areas have been established in Canada, and a number of areas of interest have been identified. To date no Marine Protected Areas have been established in Ontario (DFO, 2007).

Legislation and Policy Basis

Marine Protected Areas are established by DFO under the *Oceans Act* (DFO, 2005; Statutes of Canada, 1996). They can be established in internal waters, a territorial sea, or an exclusive economic zone of Canada (DFO, 2007). The DFO also uses the *Fisheries Act* and the *Species at Risk Act* to manage assets in Marine Protected Areas.

The DFO has a leadership role in coordinating the development and implementation of a national system of marine protected areas. In addition to the DFO Marine Protected Areas Program, two other federal agencies collaborate with DFO to establish and manage federal marine protected areas: Parks Canada manages National Marine Conservation Areas (see Section 5.2 on page 120) and Environment Canada manages Marine Wildlife Areas (see Section 5.8 on page 140). Environment Canada also manages Migratory Bird Sanctuaries (see section 5.5 on page 132) and National Wildlife Areas (see Section 5.6 on page 135), some of which have marine components that are considered part of the federal marine protected area network (DFO, 2005). A *Federal Marine Protected Areas Strategy* has been developed to clarify the roles and responsibilities of each federal government agency, establish a more systematic approach to planning and designation of marine protected areas, enhance collaboration, increase awareness, and link to continental and global marine networks (DFO, 2005).

Image by M. Wester

Protection Goal and/or Objectives

Marine Protected Areas are one among other management tools that contribute to the improved health, integrity, and productivity of marine ecosystems. Marine Protected Areas can be established for the conservation and protection of:

- Commercial and non-commercial fishery resources, including marine mammals, and their habitats.
- Endangered or threatened marine species and their habitats.
- Unique habitats.
- Marine areas of high biodiversity or biological productivity.
- Any other marine resource or habitat as is necessary to fulfill the mandate of the Minister (*Oceans Act*, Section 35(1)) (Statutes of Canada, 1996).

All references to Marine Protected Areas (MPAs) are to those established under the *Oceans Act*, unless specifically identified in the context of the Federal MPA Strategy or Canada's network of MPAs, where the term "marine protected area" is a generic reference.

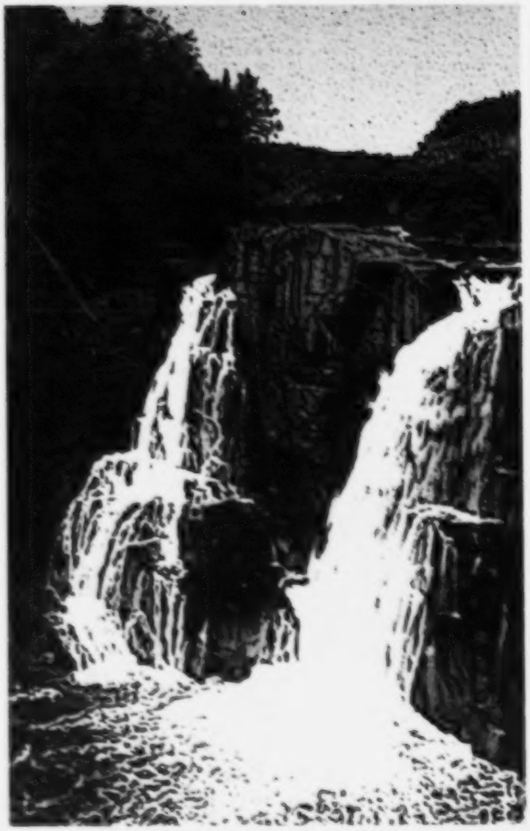


Image by P. Kor

Selection Criteria

The Government of Canada has adopted an ecosystem-based approach to integrated oceans management (IOM), a component of which involves the establishment of Marine Protected Areas under the *Oceans Act*. DFO's candidate Marine Protected Area sites are typically located within one of the five Large Ocean Management Areas (LOMAs) delineated as a basis for ecosystem-based management. These areas include the Eastern Scotian Shelf, Placentia Bay/Grand Banks, Gulf of St. Lawrence, Pacific North Coast, and Beaufort Sea LOMAs.

Ecological components within a LOMA, such as identified ecologically and biologically significant areas, and ecologically significant species and community properties inform selection of the candidate sites. Priority areas of ecological significance outside the LOMAs may also be considered. Candidate sites are then prioritized according to their ecological importance and the level of threat from human activities or influences. Feasibility/practicality considerations are also taken into account (P. Doherty, personal communication).

Management Objectives and/or Guidelines

A management plan is developed for each Marine Protected Area and includes background information, goals and objectives, and priorities for management, monitoring, and enforcement. The plan also describes the boundaries and zones of the Marine Protected Area that define the levels of site protection. Zoning provisions include boundaries for specific activities, and use and restriction prescriptions for activities in each of the zones (DFO, 2007).

The Degree of Protection for *Oceans Act* Marine Protected Areas and the Corresponding IUCN Protected Area Management Category: A Preliminary Assessment

For Marine Protected Areas, protection is the primary objective and is year-round, the commitment is legislated, and activities and large-scale developments that are inconsistent with conservation objectives of the area are excluded. Each Marine Protected Area may include different levels of protection through a series of zones within which activities are permitted or prohibited depending on the management objectives. Each Marine Protected Area may also include a range of management objectives and associated permitted or restricted activities at differing depths. While *Oceans Act* Marine Protected may generally qualify as IUCN Category II protected areas, other IUCN categories may apply depending on the zone and depth. The regulations and management plan for each Marine Protected Area should be evaluated to determine the appropriate IUCN category.

Key Contact(s)

Fisheries and Oceans Canada
Oceans Directorate
200 Kent Street
Ottawa, Ontario, K1A 0E6
Telephone: 613-990-1279
Fax: 613-990-4810
Website: *www.dfo-mpo.gc.ca/oceans/marineareas-zonesmarines/mpa-zpm/index-eng.htm*

5.8 Marine Wildlife Areas

Introduction

In Canada, efforts to protect offshore marine ecosystems and associated biodiversity have been ongoing for many years, including protection of marine habitats (e.g., Zurbrigg, 1996). The establishment of Marine Widlife Areas exemplifies Canada's commitment to protect the integrity of marine ecosystems. Marine Wildlife Areas are established by Environment Canada *"to protect nationally significant marine habitats for wildlife conservation, research, and interpretation"* (DFO, 2007). A Marine Wildlife Area can encompass terrestrial and marine habitats. Currently there are no Marine Wildlife Areas in Canada, however a number of National Wildlife Areas and Migratory Bird Sanctuaries have significant marine components (Yurick and Mageau, 2006).

Legislation and Policy Basis

In Canada, critical wildlife habitats are set aside for wildlife research, conservation, and public education under the *Canada Wildlife Act*. On land and in coastal waters out to the 12 nautical-mile (22.2 km) territorial sea limit, these areas are designated as National Wildlife Areas and beyond the territorial limit are designated as Marine Wildlife Areas (DFO, 1999).

Protection of unique marine ecozones and nearshore areas are also legislated through the *Migratory Birds Convention Act* which establishes Migratory Bird Sanctuaries (see Section 5.5 on page 132), and the *Species at Risk Act* (DFO, 1999). Within Canada, other types of marine protected areas include National Marine Conservation Areas (see Section 5.2 on page 120) managed by Parks Canada and *Oceans Act* Marine Protected Areas (see Section 5.7 on page 138) managed by the Department of Fisheries and Oceans. A *Federal Marine Protected Areas Strategy* has been developed to clarify the roles and responsibilities of each government agency, establish a more systematic approach to planning and designation, enhance collaboration, increase awareness, and link to continental and global marine networks (DFO, 2005).

Image by P. Kor

Protection Goal and/or Objectives

Marine Wildlife Areas can serve one or more conservation-related goals, including to:

- Protect critical habitat (e.g., feeding, spawning, or nursery grounds).
- Protect an ecological feature or process (e.g., an upwelling zone or estuary).
- Protect a special or unique site or feature (e.g., a migratory species 'bottleneck' site).
- Protect ecologically representative or typical habitats.
- Establish a 'control' area for research and monitoring.
- Support the rehabilitation of populations, species, and habitats.

Selection Criteria

To qualify as a Marine Wildlife Area, a candidate site must meet the following criteria:

- At minimum, 1% of the Canadian population (where total populations are known) of a species or subspecies of migratory bird or species at risk must be supported by the marine or terrestrial area for any portion of the year.

- A considerable group of species or subspecies of migratory birds or species at risk is supported by the marine or terrestrial area, or the area supports a significant number of individuals of any one or more of these species or subspecies where total populations are not known or the assemblage represents a regionally significant area.
- A critical habitat for a listed migratory bird or other species at risk population has been identified in the marine or terrestrial area (Environment Canada, 2004).

Management Objectives and/or Guidelines

The goal of management is to promote ecosystem integrity and the conservation of all wild organisms in the area. The level of protection is determined on a site by site basis and implemented with management plans designed to regulate human activities. A management regime is developed with regulations established under various existing pieces of legislation. Regulations dictate general prohibitions (within the limits set by the *United Nations Law of the Sea Convention*), and allow other activities compatible with wildlife conservation only under permit.

The Degree of Protection for Marine Wildlife Areas and the Corresponding IUCN Protected Area Management Category: A Preliminary Assessment

Marine Wildlife Areas qualify as 'fully protected' areas because protection is the primary objective, the commitment is legislated, they are protected year-round in perpetuity, and they exclude industrial activities and large-scale developments. While Marine Wildlife Areas may qualify as IUCN Category II protected areas, the management plan for each area should be evaluated to determine the appropriate IUCN protected area category.

Key Contact(s)

Inquiry Centre
Environment Canada
70 Crémazie Street
Gatineau, Quebec
K1A 0H3
Telephone: 1-800-668-6767 [in Canada only] or
819-997-2800
Fax: 819-994-1412
Website: *www.cws-scf.ec.gc.ca/habitat/default.asp?lang=en&n=738B8BCA*
Information: *enviroinfo@ec.gc.ca*

5.9 National Capital Commission Lands

Introduction

The National Capital Commission is a federal Crown corporation that owns, plans, and manages property on federal lands in the National Capital Region. The National Capital Commission protects and manages physical assets of national significance including Gatineau Park, the official residences, the grounds of Parliament Hill, a number of urban lands and parks, and the Ottawa area greenbelt (National Capital Commission, 2006). The crescent-shaped greenbelt encompasses 20,000 ha of mostly rural landscape adjacent to Ottawa (Table 5-5, Fig. 5-6), and the National Capital Commission owns about 75% of this area. Protected areas located in the greenbelt include a Provincially Significant Wetland (also a Ramsar Convention Site) and an Area of Natural and Scientific Interest (National Capital Commission, 1996).

In concert with Gatineau Park in Quebec and a ring of protected agricultural land in the Outaouais, the greenbelt defines Ottawa's urban areas and gives character and structure to the National Capital Region. Within the larger region, the greenbelt provides:

- A highly visible rural landscape that reinforces the sharp and distinct transition between Ottawa's inner urban area and the outlying urban communities of Kanata, Orleans, and the South Urban Community.
- An attractive and symbolic gateway to the capital for those approaching by road, rail, and air.
- A series of connected natural areas that strengthen local and regional ecosystems and act as the hub of a larger network extending to Constance Bay, the Marlborough, Larose, Cumberland forests, and beyond.
- A place where visitors and residents can appreciate the countryside and its diverse range of rural products and services. A region-wide recreational pathway network connects these greenbelt experiences to Ottawa's core and outlying suburban and rural communities.
- Sites for specialized institutions and activities in limited areas of the greenbelt with important advantages in terms of location and accessibility (National Capital Commission, 1996:20).

Table 5-5. National Capital Commission greenbelt properties.

Designation	Area (ha)
Core Natural Area	4,400
Natural Area Buffer	1,800
Natural Area Link	3,800
Cultivated Landscape	4,400
Rural Landscape	3,200
Buildable Site Area	1,200
Infrastructure Corridor	1,200
Total	20,000

Source: National Capital Commission (1996:36).

Legislation and Policy Basis

The National Capital Commission is a Crown corporation created under Section 3 of the *National Capital Act*. It has the power to purchase and accept land as a gift as well as to hold and maintain its own property, which includes urban and rural land areas. The greenbelt is managed according to the *Greenbelt Master Plan*, which includes policies and guidelines in support of protection and use of the greenbelt (National Capital Commission, 1996).

Protection Goal and/or Objectives

The greenbelt provides a mosaic of rural landscapes that contribute to the health and identity of the National Capital Region. Specifically, the greenbelt:

- Provides a distinctive and symbolic rural setting for the capital.
- Serves as a key setting in the capital for public activities that require a rural or natural environment.
- Preserves natural ecosystems that support the larger natural environment in the National Capital Region.
- Sustains productive farms and forests that support a vibrant rural community near the capital.
- Provides settings for built facilities that support the capital's political, cultural, symbolic, and administrative functions (National Capital Commission, 1996:18).

The greenbelt is comprised of seven types of designated lands that are managed according to a suite of integrated objectives (Table 5-6):

Core Natural Area:

- To enhance the ecological health, integrity, and diversity of significant natural areas and support their ecological functions and processes at levels appropriate for each ecosystem type.

Natural Area Buffer:

- To protect the ecological integrity of adjacent Core Natural Areas and contribute to the health and diversity of the available habitat for plants and animals.
- To provide for public activities and interpretation in a natural setting away from sensitive Core Natural Areas.

Natural Area Link:

- To maintain ecological continuity and conditions that facilitate movement of animal and plant species, nutrients, and water.

Cultivated Landscape:

- To conserve lands well suited for the production of farm and forest products.

Rural Landscape:

- To conserve landscapes that emphasize the rural open space character of the greenbelt and its distinctiveness from surrounding urban areas.
- To offer recreation and visitor services related to a rural context.
- To accommodate dispersed facilities with large land requirements such as antennae fields, if they are necessary to support a Buildable Site Area.

Buildable Site Area:

- To accommodate organizations of capital importance with specialized needs, such as seclusion or large operational areas.
- To provide a continuous source of revenue in support of greenbelt operations.

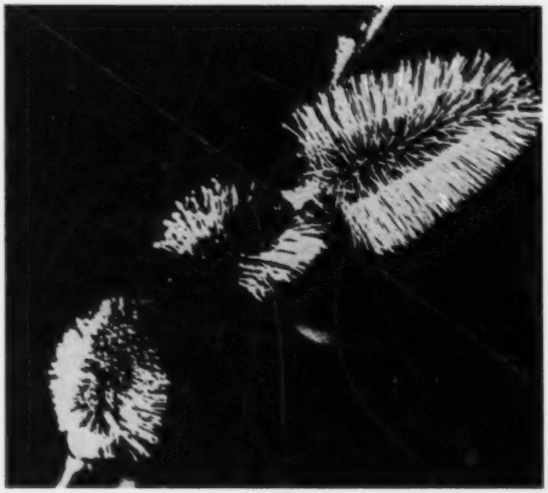


Image by: P.A. Gray

Infrastructure Corridor:

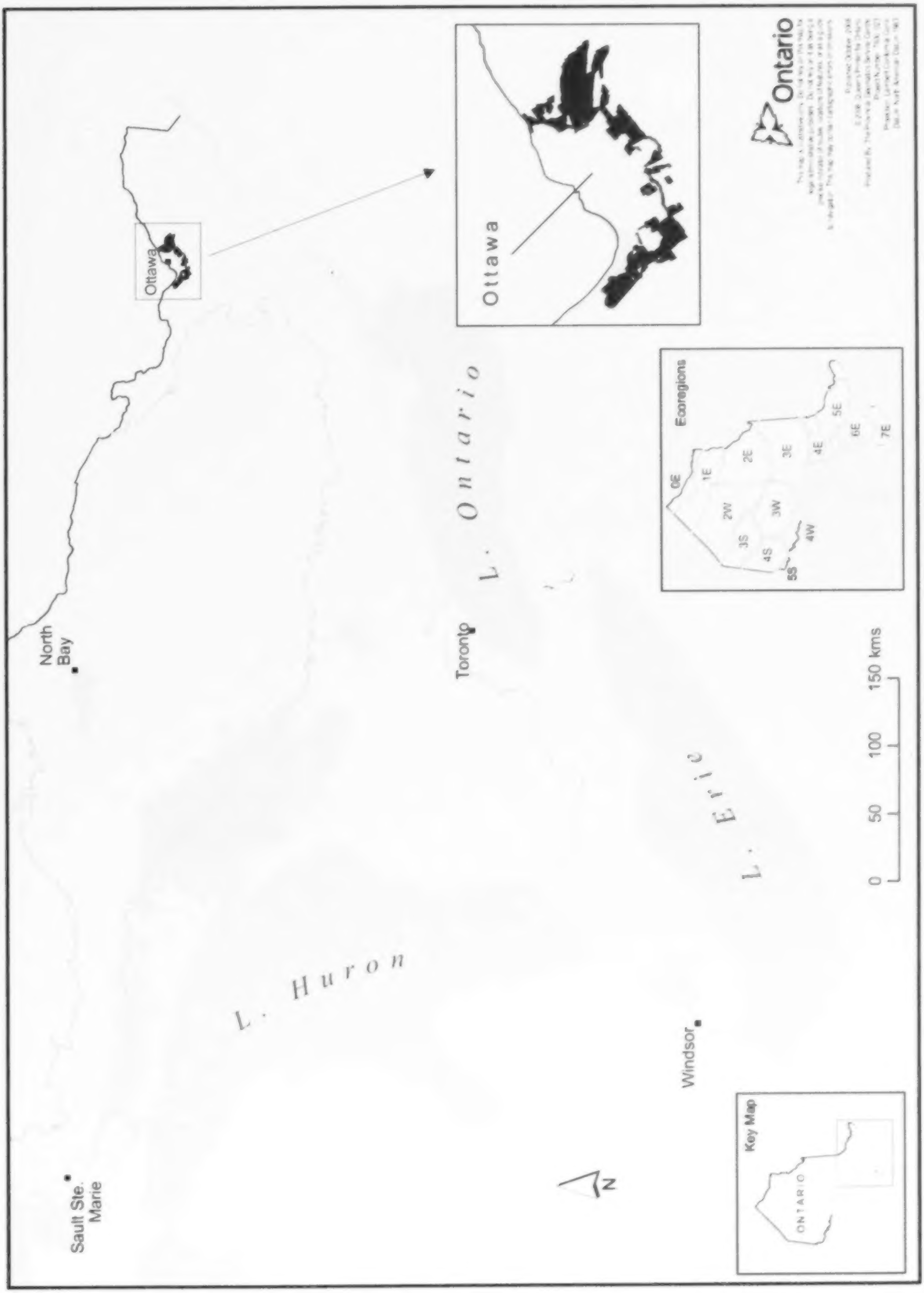
- To minimize infrastructure intrusions in the greenbelt by grouping major infrastructure in shared corridors.
- To improve public access to, and through, the greenbelt (National Capital Commission, 1996:37-46).

Selection Criteria

Each land designation area is selected according to a suite of criteria:

- **Core Natural Areas:** These areas consist of one or more ecological communities that are defined in extent by unbroken areas of vegetation, significant natural features, or key ecological processes. Many different habitats are associated with core natural areas, including significant wetlands, forests, watercourses, old fields, and woodlands. They provide large, relatively unfragmented habitats for species of regional, provincial, or national significance.
- **Natural Area Buffers:** Natural Area Buffers represent a mix of natural and rural lands that surround Core Natural Areas and support their ecological functions. They vary in scale but are usually defined by unbroken vegetation, landforms, watercourses, old fields, small wetlands, or watershed boundaries. Natural Area Buffers can also include Areas of Natural and Scientific Interest or areas of regional environmental interest.

Figure 5-6. National Capital Commission lands (the greenbelt) in Ontario.



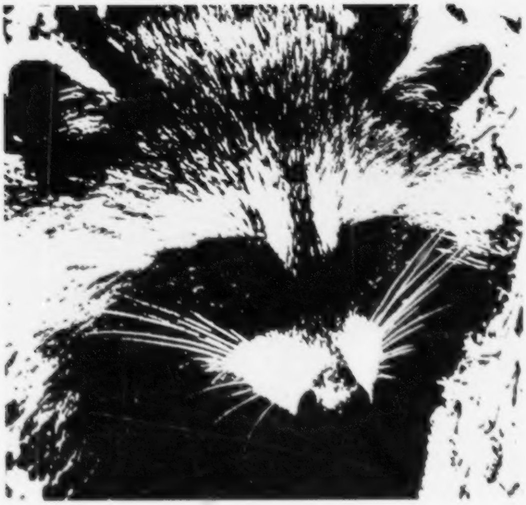


Image by P.A. Gray

- **Natural Area Links:** Natural Area Links are strategically located corridors that connect significant natural areas and allow for the free movement of animals and the continuity of plant life. They are found primarily between the Core Natural Area and the buffer designations, but also extend to the edge of the greenbelt connecting it to outside habitats.
- **Cultivated Landscapes:** Cultivated Landscapes provide large areas for market-oriented farming and forestry. They consist of large blocks of land with high potential for agriculture and forestry, typically characterized by productive (Class 1-3) soils, specialty crop land, and land with tile drainage and buildings in good condition that can support viable farm or forestry operations.
- **Rural Landscapes:** Rural Landscapes provide areas for recreation, landscape protection, and rural services and businesses. These areas are comprised of lands that conserve the physical and visual continuity of the greenbelt and provide for public use and enjoyment. Rural Landscapes offer opportunities for hobby farming and other related visitor opportunities.
- **Buildable Site Areas:** Buildable Site Areas provide space for specialized, large-scale development. This designation encompasses strategic locations for facility-intensive uses that, due to the nature of their programs, benefit from an extensive open area, isolation, or a rural environment. These areas generally have low visual quality and little ecological significance, but are strategically located in terms of access to transportation and servicing.
- **Infrastructure Corridors:** Infrastructure Corridors facilitate the movement of people, goods, and services to, through, and from the greenbelt. These areas channel major services such as roads, transitways, sewers, and watermains through the greenbelt in a limited number of shared corridors to avoid unnecessary fragmentation of valuable natural or cultivated areas. The multiple-use corridors often are the most intensively developed and used parts of the greenbelt. Most corridors build upon major transportation links that connect the inner urban area with the outlying urban communities or other cities (National Capital Commission, 1996:37-46).

Management Objectives and/or Guidelines

The management objectives of the seven land use designations outlined in the *Greenbelt Master Plan* include:

- **Core Natural Areas:** The primary uses include nature interpretation and ecological research. Acceptable recreational uses include activities that are enhanced by a natural setting and do not disrupt natural processes or fragment habitats (e.g., nature study, walking, and cross-country skiing on low-impact trails or boardwalks). Core Natural Areas are permitted to evolve with minimal intervention, except in cases where active rehabilitation protects or enhances ecosystem health, or where management is required for reasons of public safety.
- **Natural Area Buffers:** Activities conform to the land's carrying capacity, level of ecosystem health, and public appreciation of adjacent Core Natural Areas. Non-intensive or linear recreational uses such as bicycling, horseback riding, walking, cross-country skiing, and camping are encouraged.
- **Natural Area Links:** Uses include a range of low-intensity land uses and activities that preserve or enhance conditions for the movement of wildlife, public appreciation of nature, and improved visitor circulation along the Natural Area Link. Areas designated as Natural Area Links, but lacking the desired characteristics, are rehabilitated. Activities that result in the long-term interruption of link functions are discouraged.

Table 5-6. Objectives and management strategies for National Capital Commission greenbelt properties.

Land Designation	Continuous Natural Environment			Vibrant Rural Community		Compatible Built Facilities	
	Core Natural Area	Natural Area Buffer	Natural Area Link	Cultivated Landscape	Rural Landscape	Buildable Site Areas	Infrastructure Corridor
Primary Objectives	Conservation	Conservation Interpretation	Ecological Continuity	Renewable Resource Reproduction	Recreation/ Landscape Conservation	Facility Accommodation	Transport Services
Level of Use/Activity	Very Low	Low	Low	Moderate	Moderate	High	High
Level of Development	Very Low	Low	Low	Low to Moderate	Low to Moderate	Moderate to High	High
Level of Conservation	Very High	High	High	Moderate	Moderate	Moderate	Moderate
Level of Public Activities	Low	Moderate	Low to Moderate	Low to Moderate	Moderate to High	Low to High	Low
Landscape Character	Wild Vegetation, Landforms	Modified Natural Vegetation, Landforms	Modified Natural Vegetation, Landforms	Pastoral Landforms, Vegetation Horizons	Pastoral Landforms, Vegetation, Horizons	Built/Rural Buildings	Built/Rural Vegetation
Level of Management Intervention	Minimal	Minimal to Moderate	Minimal to Moderate	Moderate	Moderate	High	High

Source: National Capital Commission (1996: 36)

- **Cultivated Landscapes:** Activities that support the economic base, environmental health, or public programming value of agriculture, forestry, or other renewable resources are encouraged. The area is managed to demonstrate care, good stewardship, and respect for natural processes.

- **Rural Landscapes:** These areas offer outdoor visitor experiences and recreational activities such as golf, sports fields, and equestrian facilities. Bed and Breakfast operations, small inns, and small shops that sell local crafts are permitted. High environmental standards are used to ensure that the use of the land does not detract from the visual qualities of the area.

- **Buildable Site Areas:** Most of the landscape is maintained in a rural or natural state. Facilities in the area may be related to research, recreation, and cultural institutions. Site planning and landscape characteristics that emphasize and complement the rural setting are used.

- **Infrastructure Corridors:** These areas (i.e., roads, transitways, underground services, and related facilities) respect the land use, ecosystems, landscape character, and public programming on adjacent lands. Uses that enhance the ecological and visual qualities of Infrastructure Corridors are encouraged (National Capital Commission, 1996).

The Degree of Protection for National Capital Commission Greenbelt Lands and the Corresponding IUCN Protected Area Management Category: A Preliminary Assessment

The overall intent for the management of the National Capital Commission's greenbelt is consistent with many of the criteria/standards developed for Category V protected areas by the IUCN and affiliated organizations (see Dudley, 2008; Phillips, 2002; Swinnerton and Buggey, 2004). However, the natural heritage areas in the greenbelt do not meet the 75% rule recommended by IUCN (i.e., the primary

Image by D. Pakeuny

objective of nature conservation should apply to 75% of the protected area, Dudley, 2008:35). Given that the 75% rule is not formally prescriptive and given that Category V criteria do recognize a holistic, ecologically-oriented approach to management (including important terrestrial "greenway" and aquatic "blueway" linkages over large areas), there may be merit in recognizing the greenbelt as a Category V protected area.

Three zones (Core Natural Area, Natural Area Buffer, and Natural Area Link) qualify as 'fully protected' areas because protection is the primary objective, the commitment is legislated, they are protected year-round in perpetuity, and they exclude industrial activities and large-scale developments (Table 5-6). Core Natural Areas may qualify as Category Ia protected areas, while Natural Area Buffer and Natural Area Link Zones may qualify as Category II protected areas. Cultivated Landscapes and Rural Landscapes are designated 'partially protected' because they are not specifically dedicated to the protection of biodiversity (Table 5-7).

Table 5-7. National Capital Commission greenbelt properties and IUCN protected area management categories.

Designation	IUCN Category
Core Natural Area	Ia
Natural Area Buffer	II
Natural Area Link	II
Cultivated Landscapes	pp
Rural Landscapes	pp
Buildable Sites Area	n/a
Infrastructure Corridor	n/a

pp = 'partially protected' as described in Chapter 2
n/a = not applicable

Key Contact(s)

The National Capital Commission
202-40 Elgin Street
Ottawa, Ontario
K1P 1C7
Telephone: 613-239-5555 or 1-800-704-8227
Fax: 613-239-5063
Website: *www.capcan.ca/bins/ncc_web_content_page.asp?cid=16300-20446&lang=1*
Information: *info@ncc-ccn.ca*

6. Provincial Designations and Mechanisms

Introduction

Twenty provincial-level designations contribute to the maintenance of a variety of natural and cultural heritage assets throughout Ontario. This section examines:

- Provincial Parks.
- Conservation Reserves.
- Wilderness Areas.
- Forest Reserves.
- Enhanced Management Areas.
- Provincially Significant Wetlands.
- Areas of Natural and Scientific Interest.
- Wildlife Management Areas.
- Crown Game Preserves.
- Fish Sanctuaries.
- The Niagara Parks System.
- Parks of the St. Lawrence.
- Conservation Authority Properties.
- Forest Management Reserves and Crown Provincial Forests.
- Restricted Access Areas.
- The Niagara Escarpment.
- The Oak Ridges Moraine.
- The Greenbelt.
- The Lake Simcoe Watershed.

6.1 Provincial Parks

Introduction

In 1885, Alexander Kirkwood suggested that a park be created between the Ottawa River and Georgian Bay to protect the headwaters and forests of the Muskoka, Petawawa, Bonnechere, and Madawaska Rivers. In response, the province created Algonquin National Park in 1893. And in response to demand for cottaging opportunities, Rondeau Provincial Park was established in 1894. In 1913, the Government of Ontario passed the first *Parks Act*, and six additional parks were added to the system prior to 1945: Quetico (1913), Long Point (1921), Presqu'ile (1922), Ipperwash (1938), Sibley (1944, now called Sleeping Giant), and Lake Superior (1944). A revised *Parks Act* was passed in 1954 and by the late 1960s Ontario's system included 94 parks, ranging from small roadside picnic areas to vast and remote wilderness-like parks. Given that no one park could be all things to all people, the Department of Lands and Forests introduced a classification system in 1967 that provided for different kinds of parks, including Primitive (to protect wilderness values), Nature Reserve, Wild River, Natural Environment, and Recreation (Davidson et al., 2000; Moroz, 1993; MNR, 1992; Parks Branch, 1967). Parks were continually added to the system throughout the 1970s and 1980s. In 1978, the MNR revised the parks classification system by re-titling Primitive Parks as Wilderness Parks, Wild River Parks as Waterway Parks, and added the Historical Park class to the system (MNR, 1992).

Image by D. Paleczny

Between 1997 and 1999, MNR completed the "Lands for Life" land-use planning process under the guidance of three public round tables (responsible for the northwest, northeast, and the south) and a comprehensive consultation program. The final strategy, *Ontario Living Legacy Land Use Strategy* (MNR, 1999a), provided for the creation of many new land designations, the expansion of some Provincial Parks, and the addition of new Provincial Parks. Currently, Ontario has 329 regulated Provincial Parks that encompass 7,889,163 ha (MNR, 2006a) (Table 6-1).

Table 6-1. Provincial Parks in Ontario.

Park Class	Number*	Area (Ha)*
Wilderness	8	4,822,920.49
Nature Reserve	108	114,354.48
Cultural Heritage	6	6,735.22
Natural Environment	79	1,462,954.34
Waterway	62	1,444,618.05
Recreation	66	36,756.07
Total	**329**	**7,889,163.65**

* As of August 14, 2006
Source: MNR (2006a)

Provincial Parks are generally selected to represent samples of Ontario's earth and life science environments and cultural history, and are organized according to six classes of parks:

- Nature Reserve Parks represent outstanding examples of Ontario's biological and earth science assets (e.g., species diversity and representative examples of vegetation communities and landforms) (Fig. 6-1).
- Wilderness Parks incorporate substantial areas where the forces of nature are permitted to function freely and where visitors normally travel by non-mechanized means and experience solitude, challenge, and personal integration with nature (Fig. 6-2).
- Cultural Heritage Parks are selected to protect important examples of Ontario's past, especially those related to the land or natural resources (Fig. 6-3).
- Natural Environment Parks incorporate outstanding recreational landscapes with representative natural features and historical resources, and provide high quality recreational and educational experiences (Fig. 6-4).
- Waterway Parks incorporate outstanding recreational water routes with representative natural features and historic resources. They provide high quality recreational and educational experiences (Fig. 6-5).
- Recreation Parks encompass areas that support a variety of outdoor recreation opportunities for large numbers of people in attractive natural surroundings (Fig. 6-6) (MNR, 1992).

In addition to the six classes, the new *Provincial Parks and Conservation Reserves Act* provides for an Aquatic Park class designed "…*to protect aquatic ecosystems and associated natural and cultural features in order to support scientific research and to maintain biodiversity*" (Statutes of Ontario, 2006). The Aquatic Park class will be proclaimed in the *Provincial Parks and Conservation Reserves Act* at some point in the future.

Parks are managed according to zones, which can include a Natural Environment Zone, a Development Zone, a Wilderness Zone, a Nature Reserve Zone, a Historical Zone, and an Access Zone (MNR, 1992).

Legislation and Policy Basis

The Ontario Parks Branch is part of OMNR's Natural Resource Management Division, and is responsible for planning, management, and operation of the Provincial Parks system. Ontario Parks supports the land use planning process that establishes new parks and Conservation Reserves. The MNR parks program is governed by the *Provincial Parks and Conservation Reserves Act* (Statutes of Ontario, 2006), the *Ontario Provincial Parks Policy* (MNR, 1978a), the *Ontario Provincial Parks: Planning and Management Policies* (MNR, 1992), the *Ontario Provincial Park Management Planning Manual* (MNR, 2009b), and the *Ontario Living Legacy Land Use Strategy* (MNR, 1999a). Parks are managed in accordance with an integrated suite of planning and management policies, which are described in *Ontario Provincial Parks: Planning and Management Policies* or the "Blue Book" (MNR, 1992).

The Blue Book is historically important because it provides an example of clear and consistent direction on the management objectives and programs in Provincial Parks (Killan, 1998). In addition, the *Historical Parks Act* allows the Lieutenant Governor-in-Council to set aside any public lands in which there is an object, site, or land of historical significance as a Historic Park.

Protection Goal and/or Objectives

The purpose of the *Provincial Parks and Conservation Reserves Act* is to "…*permanently protect a system of provincial parks and conservation reserves that includes ecosystems that are representative of all of Ontario's natural regions, protects provincially significant elements of Ontario's natural and cultural heritage, maintains biodiversity and provides opportunities for compatible, ecologically sustainable recreation.*" The objectives of the Act are:

- *"To permanently protect representative ecosystems, biodiversity and provincially significant elements of Ontario's natural and cultural heritage and to manage these areas to ensure that ecological integrity is maintained.*
- *To provide opportunities for ecologically sustainable outdoor recreation opportunities and encourage associated economic benefits.*
- *To provide opportunities for residents of Ontario and visitors to increase their knowledge and appreciation of Ontario's natural and cultural heritage.*
- *To facilitate scientific research and to provide points of reference to support monitoring of ecological change on the broader landscape"* (Statutes of Ontario, 2006).

Each park class contributes differently to each of the four objectives (Table 6-2) and is managed to fulfill individual objectives.

Wilderness Parks

Wilderness Parks protect large areas where the forces of nature can exist freely and visitors travel by non-mechanized means, except as may be permitted by regulation, while engaging in low-impact recreation to experience solitude, challenge, and integration with nature. Wilderness Parks are administered with policies that provide a high degree of protection for ecosystems, features, and species. They are managed to:

- Preserve elements of geological, ecological, and species diversity.
- Perpetuate or manage natural processes.
- Act as ecological benchmarks.
- Promote scientific research.
- Provide outdoor education and heritage appreciation opportunities (MNR, 1992).

Image by D. Palecny

With the exception of strictly managed access points in some parks, Wilderness Parks are roadless and normally contain no permanent structures. They are subject to restrictive management policies. Permitted activities in Wilderness Parks include back-country and other low intensity recreation. Recreational use is permitted only in ways that do not conflict with the primary goal of ecosystem protection. Development is limited to back-country campsites, portages, trails, and signs necessary for route identification. Wilderness campsites are either canoe-in or hike-in, established at a very low density, and offer primitive facilities (e.g., designated fireplaces and pit privies) in keeping with the character of the landscape.

Permitted activities can include canoeing/kayaking, hiking, painting/photography, cross-country skiing and snowshoeing, camping, and sport fishing.

Nature Reserve Parks

Nature Reserve Parks protect representative ecosystems and provincially significant elements of Ontario's natural heritage, including distinctive natural habitats and landforms, for their intrinsic value, to support scientific research, and to maintain biodiversity. Nature Reserve Parks are administered with policies that provide a high degree of protection for special or representative earth and life science features. Every effort is made to ensure that a Nature Reserve Park is ecologically self-contained, and where possible, bounded by natural features.

Nature Reserve Parks differ from most other classes of Provincial Parks in the special degree of protection they are provided. In some cases, protection may mean no action or passive management. In other cases, careful control may be required to maintain natural features and conditions.

Permitted activities can include hiking, orienteering, self-guided nature appreciation, painting and photography, cross-country skiing and snowshoeing, camping, and sport fishing.

Cultural Heritage Parks

Cultural Heritage Parks protect elements of Ontario's distinctive cultural heritage in open space settings for their intrinsic value and to support interpretation, education, and research. Cultural Heritage Parks are administered with policies designed to provide high priority for the protection and interpretation of historical and archaeological assets. Specifically, they are managed to:

- Preserve significant historical and archaeological assets.
- Provide education and heritage appreciation opportunities.
- Promote scientific research.
- Provide recreational opportunities where appropriate.
- Protect natural heritage assets.

Permitted activities can include canoeing/kayaking, hiking, self-guided nature appreciation, orienteering, painting and photography, cross-country skiing and snowshoeing, picnicking, camping, and sport fishing.

Natural Environment Parks

Natural Environment Parks protect outstanding recreational landscapes, representative ecosystems and provincially significant elements of Ontario's natural and cultural heritage, and provide high quality recreational and educational experiences. Policies for Natural Environment Parks provide a moderate to high degree of protection of natural heritage values. They are managed to:

- Protect geological, ecological, and species diversity
- Perpetuate or manage natural processes.
- Act as ecological benchmarks.
- Promote scientific research.
- Provide recreation, outdoor education, and heritage appreciation opportunities.

Permitted activities can include back-country recreation, day-use recreation, fishing, hunting, car camping, mechanized travel, and low-moderate intensity recreational activities.

Waterway Parks

Waterway Parks protect recreational water routes and representative and significant terrestrial and aquatic ecosystems and associated natural and cultural features, and provide high quality recreational and educational experiences. Waterway Parks are administered with policies designed to provide a moderate to high degree of protection for features, ecosystems, and species. They are managed to:

- Protect geological, ecological, and species diversity.
- Perpetuate or manage natural occurring processes.
- Act as ecological benchmarks.
- Promote scientific research.
- Provide outdoor education and heritage appreciation opportunities.

Permitted activities can include backcountry recreation, day-use recreation, sport fishing, sport hunting, mechanized travel, and car camping.

Recreation Parks

Recreation Parks provide a wide variety of compatible outdoor recreation opportunities in attractive natural surroundings. Recreation Parks provide a moderate degree of protection for natural heritage values. They are managed to:

- Protect geological, ecological, and species diversity.
- Perpetuate or manage natural occurring processes.
- Serve as ecological benchmarks.
- Promote scientific research.
- Provide opportunities for outdoor education and nature appreciation.

In Recreation Parks, recreational activities often take precedence over the need to maintain natural heritage values. Permitted activities can include day use recreation, car camping, mechanized travel, sport fishing, sport hunting, and other moderate-to-high intensity recreational activities.

Table 6-2. Program objectives for Provincial Parks in Ontario.

Objectives	Type of Park					
	Wilderness	Nature Reserve	Cultural Heritage	Natural Environment	Waterway	Recreation
Protection: Wilderness landscapes	High	Low	Low	Medium	Medium	—
Special or representative earth and life science features	High	High	Low	Medium	Medium	Low
Special or representative archaeological and historical resources	Low	Low	High	Medium	Medium	Low
Environments which incorporate natural, cultural, and recreational features	Medium	Low	Medium	High	Medium	Low
Waterway corridors which incorporate natural, cultural, and recreational features	Medium	Low	Low	Medium	High	Low
Heritage Appreciation: Provide unstructured opportunities for individuals to explore and appreciate the natural and cultural heritage of Ontario	High	Medium	Medium	High	High	Low
Provide structured, resource-based interpretation through publications, displays, and/or staffed visitor services programs	Low	Low	High	High	Low	High
Recreation: Provide day-use (e.g., picnicking and swimming) opportunities in areas of outstanding recreational potential associated with natural resources	—	Low	Low	Medium	Low	High
Provide facility-based camping opportunities in areas of outstanding recreational potential associated with natural resources	Low	—	Medium	High	Low	High
Provide wilderness back-country travel and camping opportunities	High	—	Low	High	High	Low
Tourism: Provide Ontario's residents and visitors with opportunities to discover and experience the distinctive regions of the province	Medium	Low	Medium	High	Medium	High

Source: MNR (1992:26).

Selection Criteria

Ontario's approach to establishing a province-wide system of protected areas is based on the systematic application of ecological and geological criteria in conjunction with broader park class targets. All these complementary approaches were introduced in the 1970s and 1980s. The ecological and geological selection criteria were first described in *A Framework for the Conservation of Ontario's Biological Heritage* (Beechey, 1980) and *A Framework for the Conservation of Ontario's Earth Science Features* (Davidson, 1981). Since that time, these approaches have evolved in response to emerging science, developing computer technology, and improved inventories of natural features.

The five ecological and geological criteria used to help inform the identification, selection, and design of Provincial Parks (and Conservation Reserves) are:

1. Representation of terrestrial life science, aquatic life science, and earth science features.
2. Condition, or freedom from anthropogenic modifications.
3. Diversity, or heterogeneity of landscape components and species.
4. Ecological functions, primarily size, shape, connectivity, hydrological functions, and limiting habitat components for species not at risk.
5. Special features such as rare species, specialized habitats, and recognized areas.

The first two criteria (representation and condition) are applied at the landscape level. They help to identify relatively intact areas that contain features representative of Ontario's natural diversity. The remaining three criteria (diversity, ecological functions, and special features) are assessed at the site level. These criteria help to distinguish the best examples of these intact representative features, and to design functional protected area systems that promote the persistence of biodiversity.

Ecological (life science) representation is based on the principle that the full range of Ontario's natural diversity should be systematically identified and protected.

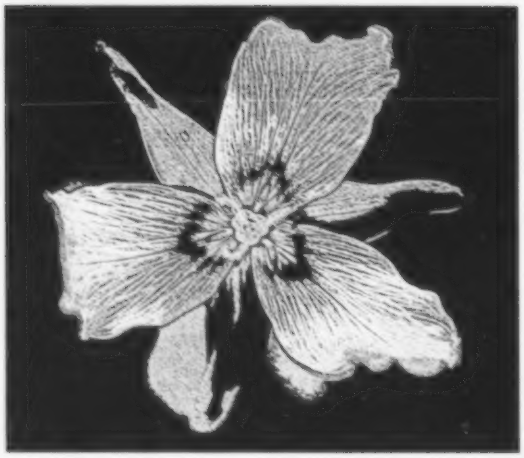


Image by P.A. Gray

Fundamentally, protected area systems should include representative examples of the known biodiversity within ecologically defined regions. Examples of biodiversity that are not adequately represented within protected areas are known as gaps in representation.

The Ministry of Natural Resources uses naturally occurring landform/vegetation associations as surrogates to represent the range of biodiversity in terrestrial ecosystems. This diversity is assessed within each of Ontario's 71 Ecodistricts. Ecodistricts are defined by surficial geology, physiographic features, and topographic features (Crins, 2002; Crins et al., 2009), and are subdivisions of the Ecoregions. MNR's minimum threshold is to represent at least 1% or 50 ha of each naturally-occurring landform/vegetation association within each of the 71 Ecodistricts within the protected area system. All classes of Provincial Parks, as well as Conservation Reserves, contribute toward the threshold. A representation framework for aquatic ecosystems has yet to be adopted for use in Ontario.

Geological (earth science) representation provides the basis for protecting selected examples of Ontario's geological history and its physical expression on the landscape. Earth science features are classified into 43 environmental themes according to internationally recognized concepts of time, landform evolution (geomorphology), and geologic process. This approach attempts to identify examples of each known rock type, fossil assemblage, landform, and geological process, as well as suites of features that define the significant geological events through time. All classes of Provincial Parks, as well as Conservation Reserves, contribute to earth science representation.

The condition criterion focuses on freedom from anthropogenic disturbances. During conservation planning, sites known to contain major ecosystem modifications are normally removed from consideration as potential candidate protected areas.

Diversity refers to the heterogeneity of landscapes and species within a proposed site. Sites with greater variety of physical habitats tend to support greater biodiversity because of the range of habitat conditions they afford, and provide for greater efficiency in representing earth and life science features.

Ecological functions refer to the ecological role of a site within the broader context of the surrounding landscape and watershed, and relate directly to biodiversity persistence. Ecological functions, in part, determine how well biodiversity, physiographic features, and natural processes are likely to be maintained within a protected area. Under this criterion, proposed sites are assessed in terms of: hydrological functions; size, shape, and connectivity; natural disturbances; limiting components of habitat for species that are not at risk; and other ecological functions such as nutrient cycling.

In the ecological framework, the special features criterion addresses rare species and vegetation communities, localized features important to their persistence, and other designations that recognize an area's ecological values. In the geological framework, special features refer to type sections, reference sections, type localities, and type morphology.

These ecological and geological criteria are supplemented by broader Provincial Park class targets. Together, these broad park class targets and the finer ecological and geological criteria guide the selection and design of Provincial Parks. The targets for each park class are specified in Cabinet-approved policy (MNR, 1992) as follows:

Wilderness Parks and Zones

Wilderness Parks are selected to represent large and ecologically viable segments of each of Ontario's 14 Ecoregions delineated in Fig. 1-1. Their features normally are of provincial or greater significance. The Ministry of Natural Resources strives to create Wilderness Parks that encompass 100,000 ha or more. The minimum size for a Wilderness Park has been established at 50,000 ha. The targets established for each Ecoregion are one Wilderness Park of at least 50,000 ha and one Wilderness Zone of at least 2,000 ha (in either a Waterway or Natural Environment Park), or a National Park equivalent.

Nature Reserve Parks

Nature Reserve Parks and Nature Reserve Zones are established to represent and protect Ontario's geological, ecological, and species diversity. The target is to represent each of the vegetative types found in Ontario's 14 Ecoregions and all of Ontario's past environments, through the Nature Reserve Park's earth science features (MNR, 1992:29). Like many other natural heritage areas in Ontario, Nature Reserve Parks are identified using science-based inventory, evaluation, and selection techniques. Gap analysis is used to identify representative ecosystems in each Ecoregion, and representative geological features in each earth science theme (see Crins and Kor, 1998, 2000).

Cultural Heritage Parks

Cultural Heritage Parks are selected to represent the distinctive historical resources of Ontario in open-space settings, and are protected for interpretive, educational, and research purposes. The evaluation and selection of archaeological and historical features in Ontario's Provincial Parks is based on criteria developed and described in *A Topical Organization of Ontario's History* (MNR, 1975b). The system defines 13 significant landscape-related themes (i.e., mining and mining communities, military, indigenous settlers, traders and potters) and 115 sub-themes that depict Ontario's human history. The goal is to protect important examples of Ontario's past through the designation of Cultural Heritage Parks and Historical Zones. There are no minimum size standards or representation targets for this class of park.

Natural Environment Parks

Natural Environment Parks are selected to protect large, representative, and ecologically viable areas throughout Ontario. They represent elements of geological, ecological, and species diversity commonly found in an Ecoregion, but not contained in provincial Wilderness Parks or National Park equivalents. These features are normally of provincial to local significance. The minimum size standard for a Natural Environment Park (and equivalent Natural Environment Zones in other park classes) is 2,000 ha. The class target is to establish one Natural Environment Park in each of Ontario's 71 Ecodistricts.

Waterway Parks

Waterway Parks are selected river corridors that complement other parks by representing elements of diversity not found within the other park classes. Their features are normally of provincial to local significance. The minimum size standard for a Waterway Park is determined by its length and a minimum corridor width of 200 metres on either side of the river. The class target is to establish one Waterway Park in each of Ontario's 71 Ecodistricts, with boundaries at least 200 metres inland from the high-water marks on shorelines of lakes and rivers, that provides an opportunity for at least a one and one-half day (on average) downstream canoe trip in low-intensity use areas, and at least a one-half day (on average) downstream/upstream canoe trip in high-intensity use areas.

Recreation Parks

Recreation Parks are selected to protect outstanding recreational environments. They also may include representative examples of Ontario's geological, ecological, and species diversity. Recreation Parks can complement Wilderness, Natural Environment, and Waterway Parks by representing natural features not found within these other types of parks. Their features, ecosystems, and species are normally of regional to local significance. Given that the intent is to ensure a sufficient supply of recreational and tourism opportunities, there are no minimum size standards or representation targets for this class of park.

Image by P.A. Gray

Management Objectives and/or Guidelines

Two principles guide all aspects of the planning and management of Ontario's Provincial Parks:

- *"Maintenance of ecological integrity shall be the first priority and the restoration of ecological integrity shall be considered.*
- *Opportunities for consultation shall be provided"* (Statutes of Ontario, 2006).

Ecological integrity refers to "*a condition in which biotic and abiotic components of ecosystems and the composition and abundance of native species and biological communities are characteristic of their natural regions and rates of change and ecosystem processes are unimpaired*" (Statutes of Ontario, 2006). Under the auspices of the *Provincial Parks and Conservation Reserves Act*, Provincial Parks are managed through 'Management Statements' and 'Management Plans'. A Management Statement is a document approved by the Minister that provides a policy or resource management framework that addresses a limited number of non-complex issues or proposals or both for limited capital infrastructure or resource management projects for one or more Provincial Parks or Conservation Reserves or for a combination of them. A Management Plan is a document approved by the Minister that provides a policy and resource management framework that addresses substantial and complex issues or proposals or both for substantial capital infrastructure or resource management projects in one or more Provincial Parks or Conservation Reserves or for a combination of them.

In addition to a commitment to ecological integrity, nine principles guide the management of Provincial Parks:

- **Permanence:** The Provincial Park system is dedicated for all time to present and future generations of Ontarians for their healthful enjoyment and appreciation.
- **Distinctiveness:** Provincial Parks provide a distinctive range of quality outdoor recreation experiences, many of which cannot be provided in other types of parks (e.g., wilderness travel and appreciation).
- **Representation:** Provincial Parks are established to secure for posterity representative features of Ontario's natural and cultural heritage. Wherever possible, the best representations of our heritage are included in the park system.
- **Variety:** The Provincial Parks system provides a wide variety of outdoor recreation opportunities, and protected natural and cultural landscapes and features.
- **Accessibility:** The benefits of the system will be distributed as widely as possible geographically and as equitably as possible socially so that they are accessible to all Ontario residents.
- **Coordination:** The Provincial Parks system will be managed to complement, rather than compete with, the private sector and other public agencies.
- **System:** Individual Provincial Parks contribute to the overall objectives of the Provincial Parks system. While all objectives are not met in each park, the system provides the diversity of experiences and landscapes which are sought.
- **Classification:** No individual park can be all things to all people. The park classification system organizes Ontario's Provincial Parks into broad categories, each of which has particular purposes and characteristics as well as distinctive planning, management, and visitor service policies.
- **Zoning:** Ontario's Provincial Parks are zoned on the basis of resource significance and recreational potential. Various types of zones ensure that users get the most out of individual parks. Planning and management policies appropriate to each type of zone are applied consistently throughout the parks system (MNR, 1992).

Classification of parks and zoning are the key elements in determining the type and extent of management activities that may take place in a Provincial Park. Classification sets the direction for the types of zones established in a park and the general approach used in formulating management policies. Park zoning (described below) permits further refinement by setting limits on the range of management activities that can be considered. This approach is flexible enough that management policies can be tailored to reflect natural asset significance and management objectives for individual parks. At the same time, it ensures general consistency in approach across the entire system (MNR, 1992).

Management plans are prepared to describe management policies aimed at maintaining or enhancing achievement of the four objectives in the *Provincial Parks and Conservation Reserves Act* developed for the Provincial Parks System (protection, heritage appreciation, recreation, and research) (see page 150). *Ontario Provincial Parks: Planning and Management Policies* (MNR, 1992) provides the provincial direction and context relating to classification, zoning, and permitted uses, while each park management plan is developed to provide park-level policy. The park management plan includes:

- A definition of the park's role, significance, and classification in the context of the provincial system.
- A statement of policy, including classification and zoning, addressing the protection, planning, development, and management of the significant resources and values in each park.
- Documented evidence that planning, development, and management activities reflect the need for environmental protection and sustainability, and are responsive to public interests.

- Guidance in preparing subsidiary implementation plans for the various projects and activities needed to achieve park objectives.
- A rationale and list of priorities for the long-term funding of capital development and operations.
- A record of issues identified through internal and external consultation, and their resolution through the management planning process.
- A basis for auditing the development, operations, and resource management activities in a park.
- Assurance that proposed management projects and activities are assessed for *Environmental Assessment Act* compliance.

The park management plan process may contain as many as six distinct stages:

1. Preparation and approval of the terms of reference for the planning process.
2. Inventory and analysis of background information.
3. Identification of issues and the preparation of conceptual plan alternatives.
4. Preparation and review of the preliminary park management plan.
5. Preparation and approval of the park management plan.
6. Scheduled or unscheduled review of the approved plan, or a plan amendment (MNR, 1992).

Zoning

Ontario's Provincial Parks are zoned according to the type and significance of their natural assets and recreational potential. Planning and management policies appropriate for each for each zone type are applied consistently throughout the parks system. The seven types of zones used in the Provincial Parks system include Wilderness, Nature Reserve, Natural Environment, Historical, Development, Access, and Recreation-Utilization (Algonquin Park only) (Table 6-3) (MNR, 1992).

Wilderness Zones

Wilderness Zones include wilderness landscapes of appropriate size and integrity to protect natural and cultural values, and to provide access to back-country recreation, such as canoeing or hiking. They can be established only in Wilderness, Waterway, and Natural Environment Parks, and range in size from 2,000 to 50,000 ha.

Wherever possible, resource management policies are directed toward achieving minimum human intervention and the maintenance of natural ecosystem processes (e.g., succession). In keeping with the character of the landscapes and waterscapes protected by the zone, facilities are:

- Limited to canoe-in or hike-in wilderness campsites and required trail signs.
- Established at a very low density.
- Maintained at primitive levels of facility development (e.g., designated fireplaces and pit privies).

Nature Reserve Zones

Nature Reserve Zones protect provincially significant earth and/or life science features within a park, and may include a protective buffer area in which a minimum amount of human activity is permitted. They can be established in any class of Provincial Park (Table 6-3). Long-term protection is ensured through park management plans.

Management objectives and policies for each Nature Reserve Zone are established according to the type of earth and/or life science features the zone is intended to protect. Natural asset features can be managed to promote natural evolutionary processes:

- When established to retain intact evolutionary patterns, natural processes such as fire, insect and disease outbreaks, and erosion are permitted to take their course. This approach is particularly valuable in research because the zone can be used as a benchmark against which to evaluate a similar, but managed, area outside the zone.
- If established to perpetuate a particular feature or successional stage. For example, in some cases, a vegetative community is protected from some of the natural processes identified above. In other situations, natural processes such as fire may be permitted under controlled conditions to ensure that a feature is maintained (e.g., prescribed burning of grassland to perpetuate a prairie ecosystem).

Development is generally restricted to trails, required signs, interpretive facilities (where warranted), and temporary facilities for research and management.

Historical Zones

Historical Zones encompass provincially significant cultural resources of a park and can be established in all six park classes. Management policies for individual historic resources range from allowing cultural landscapes and features to evolve without human interference to activities designed to stabilize their present condition, to restoring and reconstructing cultural sites and features to more closely approximate their original condition. Development is limited to trails, necessary signs, interpretive, educational, research and management facilities, and historical restorations or reconstruction where appropriate.

Natural Environment Zones

Natural Environment Zones include natural landscapes and waterscapes in which a minimum level of development is permitted in support of low-intensity recreational activities. These zones often serve as buffers between Development or Access Zones and the more strictly protected Wilderness, Historical, or Nature Reserve Zones.

Resource management policies for Natural Environment Zones can be more permissive than policies for Wilderness and Nature Reserve Zones by allowing human activities designed to improve values such as aesthetics and wildlife habitat. Development is generally limited to back-country campsites, portages, necessary signs, and minimal interpretative facilities.

Development Zones

Development Zones encompass park areas allocated for intensive day-use and car camping activities. Normally, they are small areas in Waterway, Historical, Natural Environment, and Recreation Parks. Development may include roads, visitor control structures, beaches, picnic areas, car-accessed campgrounds, commercial service facilities, as well as orientation, interpretive, educational, research, and management facilities.

Access Zones

Access Zones provide staging areas for visitors. These zones can be established in all six park classes, but are generally located in parks with large interior areas (i.e., Wilderness, Waterway, and Natural Environment Parks) used for back-country recreation, or in Nature Reserve Parks.

Generally, development is limited to roads, visitor control structures, and group campgrounds. In some cases, provisions may be made for limited orientation, interpretive, or educational facilities. Limited facilities for research and park management may also be established.

Table 6-3. Ontario Provincial Park zones.

Type of Park	Type of Zone					
	Wilderness	Nature Reserve	Historical	Natural Environment	Development	Access
Wilderness	Yes	Yes	Yes	No	No	Yes
Nature Reserve	+ + +	Yes	Yes	No	No	Yes
Cultural Heritage	No	Yes	Yes	Yes	Yes	Yes
Natural Environment***	Yes	Yes	Yes	Yes	Yes	Yes
Waterway	Yes	Yes	Yes	Yes	Yes	Yes
Recreation	No	Yes	Yes	Yes	Yes	Yes

+ + + A Wilderness Zone designation is not required given the purpose and restrictive management prescriptions for Nature Reserve Parks.

*** A seventh type of zone, the Recreation Utilization Zone, only applies to Algonquin Park, a Natural Environment Park.

Source: MNR (1992)

Image by P.A. Gray

Campground development in Access Zones normally occurs only in those classes of parks where Development Zones are not permitted (i.e., Wilderness, Waterway, Historic, and Nature Reserve Parks). Development is intended to meet the needs of park visitors entering or exiting the park's interior, and therefore only basic facilities are provided.

Algonquin's Recreation-Utilization Zone
A Recreation-Utilization Zone includes natural landscapes on which permitted activities include low-intensity recreation and commercial timber harvesting. By legislation, the only Recreation-Utilization Zone in the parks system is located in Algonquin Provincial Park. To the greatest extent possible, human activities are planned, developed, and managed in accordance with the policies set out for Natural Environment Zones.

In some cases, permitted activities in Provincial Parks differ between the pre- and post-Ontario Living Legacy period (Table 6-4).

The Degree of Protection for Provincial Parks and the Corresponding IUCN Protected Area Management Category: A Preliminary Assessment

Overall, Provincial Parks are 'fully protected' areas because protection is the primary objective, the commitment is legislated, they are protected year-round in perpetuity, and with one exception (the Recreation-utilization Zone in Algonquin Provincial Park) they exclude industrial activities and large-scale developments.

With an established zoning system like the one used by Ontario Parks, there are opportunities to apply the IUCN categories at a finer scale. Wilderness Parks and Wilderness Zones could qualify as IUCN Category Ib protected areas and Nature Reserve Parks and Nature Reserve Zones could qualify as Category Ia protected areas. Waterway Parks, Natural Environment Parks, and Recreation Parks could qualify as IUCN Category II protected areas. In addition, Natural Environment Zones could qualify as Category II protected areas. Cultural Heritage Parks and Historic Zones meet requirements for classification as Category III protected areas. In cases where active habitat management is ongoing, some Provincial Parks may qualify as IUCN Category IV protected areas. For example, the construction and maintenance of articificial nesting habitat for Loons and Ospreys in Murphy's Point Provincial Park may qualify this designation as an IUCN Category IV protected area. Similarly, the replacement of conifer plantations with indigenous oak savannah ecosystems may qualify Pinery Provincial Park as a Category IV protected area. Some Provincial Parks may qualify as Category V protected areas. For example, Carden Alvar Provincial Park grassland ecosystems that provide important habitat for grassland birds such as the Loggerhead Shrike and the Henslow's Sparrow are maintained with traditional cattle grazing practices.

The Recreation-Utilization Zone in Algonquin Park is a 'partially protected' area and does not qualify for designation in the IUCN protected area classification.

Key Contact(s)

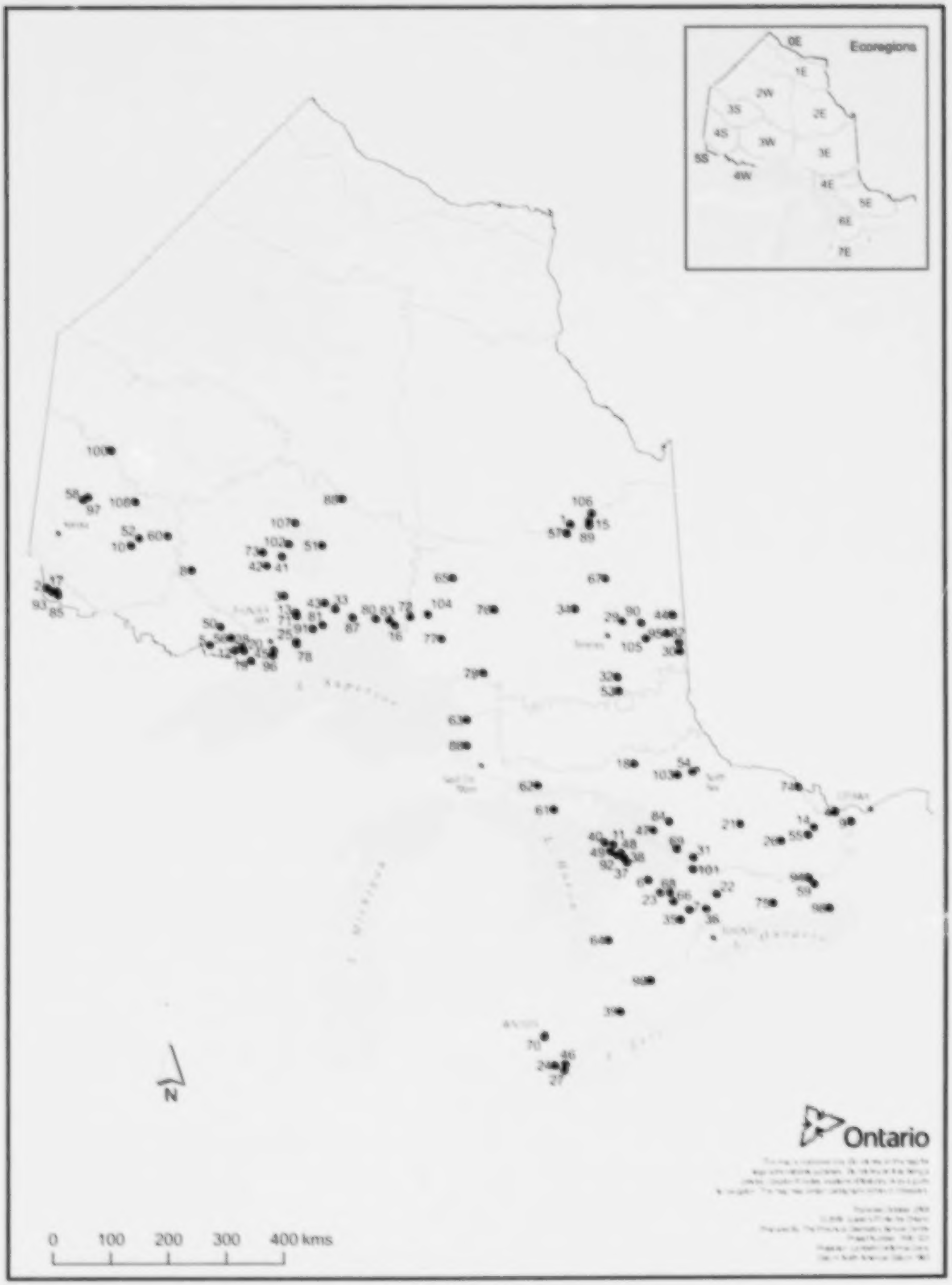
Natural Heritage, Lands and Protected Spaces Branch
Ministry of Natural Resources
300 Water Street, 6th Floor
Peterborough, Ontario, K9J 8M5
Phone: 705-755-1729
Fax: 705-755-1701
Website: www.ontarioparks.com

Table 6-4. A pre- and post-Ontario Living Legacy summary of permitted uses in Provincial Parks with reference to the *Provincial Parks and Conservation Reserves Act.*

Use	(Pre-Ontario Living Legacy) Existing Provincial Parks	(Post-Ontario Living Legacy) New Provincial Parks in the Planning Area
Commercial timber harvest and commercial hydro development.	Not permitted, except for existing commercial forest harvest in the Recreation-Utilization Zone in Algonquin Park. Exception: Existing hydro commitments in land-use plans can be honoured. New hydro developments are possible for: • Use in park for park purposes. • Use within off-grid communities (subject to conditions) with Cabinet approval.	Not permitted. Exception: Existing hydro commitments in land-use plans can be honoured. New hydro developments are possible for: • Use in park for park purposes. • Use within off-grid communities (subject to conditions) with Cabinet approval.
Prospecting, staking mining claims, developing mineral interest, or working mines.	Not permitted.	Not permitted.
Bait fishing, commercial fishing, commercial fur harvesting, and wild rice harvesting.	Existing use permitted to continue, indefinitely, except in Wilderness and Nature Reserve Zones and Parks, where activities will be phased out by 2010 (except for Aboriginal use, subject to applicable legislation and regulation). No new operations permitted.*	Existing use permitted to continue indefinitely, except in new Nature Reserve Parks. No new operations permitted.
Sport hunting.	Existing policy which permits sport hunting in specific park classes and zones continues.	Permitted in all new parks and additions except Nature Reserve Parks and Zones. Sport hunting permitted in additions to Wilderness Parks.
Sport fishing.	Permitted, except in Fish Sanctuaries.	Permitted, except in Fish Sanctuaries.
Seasonal recreation camps ('hunt camps').	Existing camps may continue, as permitted by existing policy, and may be eligible for extended tenure but not purchase of land.	Existing authorized camps permitted to continue, and may be eligible for extended tenure but not purchase of land.
Commercial bear hunting.	Existing use permitted to continue. New operations not permitted.	Existing use permitted to continue. New operations not permitted.
Tourism facilities (for resource-based tourism) and recreational trails.	Continue as permitted by existing policy.	Existing authorized facilities and trails (motorized and non-motorized) continue, subject to management prescriptions determined through management planning. Existing tourism facilities may be eligible for enhanced tenure, and decisions will be made in management planning. New tourism facilities and trail facilities and trails can be considered where consistent with existing park policy.
Land disposition.	Sale of lands is not permitted. New dispositions for use by private individuals or corporations will not be permitted. Decisions on new commercial tenure will be made in management planning.	Sale of lands is not permitted. New dispositions for use by private individuals or corporations will not be permitted. Decisions on new commercial tenure will be made in management planning.
Forest/mining roads, trails, and utility corridors.	Existing roads can continue to be used, but new roads for resource extraction will not be permitted.	Existing roads can continue to be used. New linear facilities can be considered subject to conditions in the *Provincial Parks and Conservation Reserves Act.*

* Phase out policy is under review.

Figure 6-1. Nature Reserve Class Provincial Parks in Ontario in relation to Ecoregion boundaries.



Nature Reserve Class Provincial Parks in Ontario – Legend

1 ADAM CREEK
2 AGASSIZ PEATLANDS
3 ALBERT LAKE MESA
4 ALEXANDER STEWART
5 ARROWHEAD PENINSULA
6 BAYVIEW ESCARPMENT
7 BEATTIE PINERY
8 BONHEUR RIVER KAME
9 BURNT LANDS
10 BUTLER LAKE
11 CABOT HEAD
12 CASTLE CREEK
13 CAVERN LAKE
14 CENTENNIAL LAKE
15 CORAL RAPIDS
16 CRAIG'S PIT
17 CRANBERRY LAKE
18 DAISY LAKE UPLANDS
19 DEVON ROAD MESA
20 DIVIDE RIDGE
21 DIVIDING LAKE
22 DUCLOS POINT
23 DUNCAN ESCARPMENT
24 EAST SISTER ISLAND
25 EDWARD ISLAND
26 EGAN CHUTES
27 FISH POINT
28 FRALEIGH LAKE
29 FREDERICK HOUSE LAKE
30 GEM LAKE MAPLE BEDROCK
31 GIBSON RIVER
32 GRASSY RIVER MOND LAKE LOWLANDS AND FERRIS LAKE UPLANDS
33 GRAVEL RIVER
34 HICKS-OKE BOG
35 HOCKLEY VALLEY
36 HOLLAND LANDING PRAIRIE
37 HOPE BAY FOREST
38 IRA LAKE
39 JOHN E. PEARCE
40 JOHNSTON HARBOUR-PINE TREE POINT
41 KABITOTIKWIA RIVER
42 KAIASHK
43 KAMA HILLS
44 LAKE ABITIBI ISLANDS
45 LE PATE
46 LIGHTHOUSE POINT
47 LIMESTONE ISLANDS
48 LION'S HEAD
49 LITTLE COVE
50 LITTLE GREENWATER LAKE
51 LIVINGSTONE POINT
52 LOLA LAKE
53 MACMURCHY TOWNSHIP END MORAINE
54 MANITOU ISLANDS
55 MATAWATCHAN
56 MATAWIN RIVER
57 MATTAGAMI RIVER BEACH AND AEOLIAN DEPOSIT
58 MAYNARD LAKE
59 MENZEL CENTENNIAL
60 MINNITAKI KAMES
61 MISERY BAY
62 MISSISSAGI DELTA
63 MONTREAL RIVER
64 MORRIS TRACT
65 NAGAGAMI LAKE
66 NOISY RIVER
67 NORTH DRIFTWOOD RIVER
68 NOTTAWASAGA LOOKOUT
69 O'DONNELL POINT
70 OJIBWAY PRAIRIE
71 OUIMET CANYON
72 PAN LAKE FEN
73 PANTAGRUEL CREEK
74 PETAWAWA TERRACE
75 PETER'S WOODS
76 PICHOGEN RIVER MIXED FOREST
77 POKEI LAKE/WHITE RIVER WETLANDS
78 PORPHYRY ISLAND
79 POTHOLES
80 PRAIRIE RIVER MOUTH
81 PUFF ISLAND
82 PUSHKIN HILLS
83 RED SUCKER POINT
84 ROUND LAKE
85 SABLE ISLANDS
86 SANDY ISLANDS
87 SCHREIBER CHANNEL
88 SEDGMAN LAKE
89 SEXTANT RAPIDS
90 SHALLOW RIVER
91 SHESHEEB BAY
92 SMOKEY HEAD WHITE BLUFF
93 SPRUCE ISLANDS
94 STOCO FEN
95 THACKERY
96 THOMPSON ISLAND
97 TIDE LAKE
98 TIMBER ISLAND
99 TRILLIUM WOODS
100 TROUT LAKE
101 WAUBASHENE BEACHES
102 WEST BAY
103 WEST SANDY ISLAND
104 WHITE LAKE PEATLANDS
105 WILDGOOSE OUTWASH DEPOSIT
106 WILLIAMS ISLAND
107 WINDIGO BAY
108 WINDIGO POINT

Figure 6-2. Wilderness Class Provincial Parks in Ontario in relation to Ecoregion boundaries.

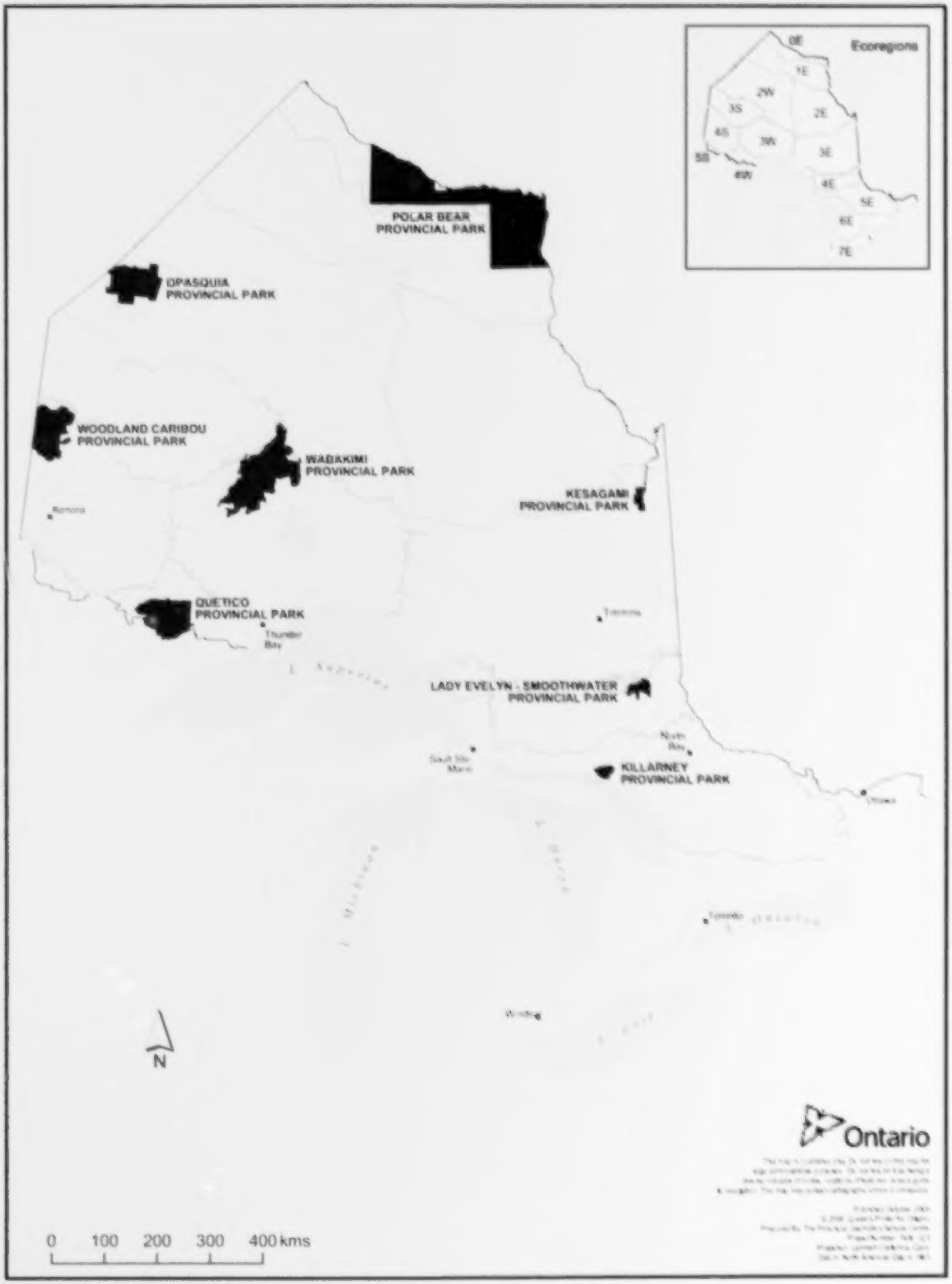


Figure 6-3. Cultural Heritage Class Provincial Parks in Ontario in relation to Ecoregion boundaries.

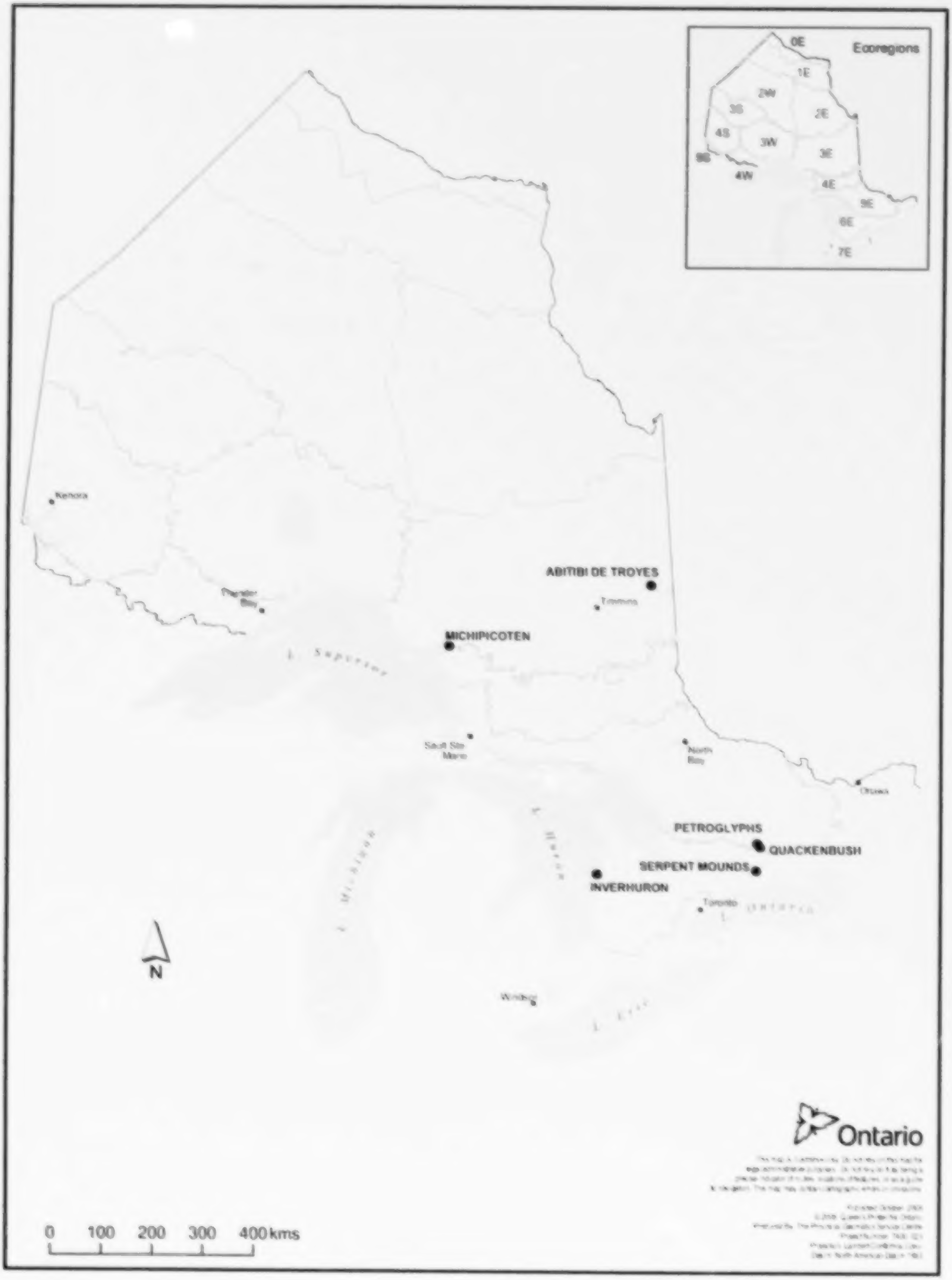
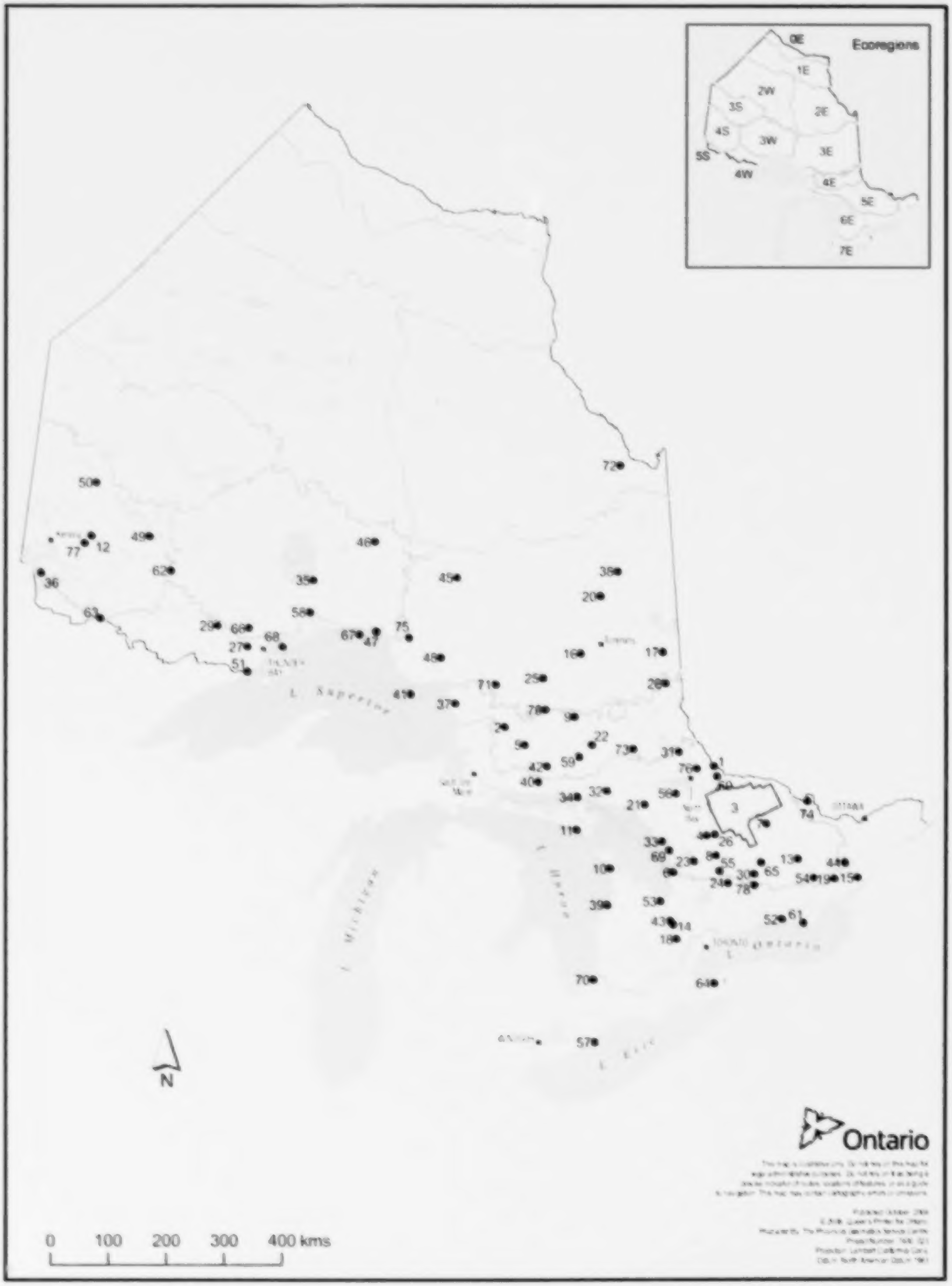


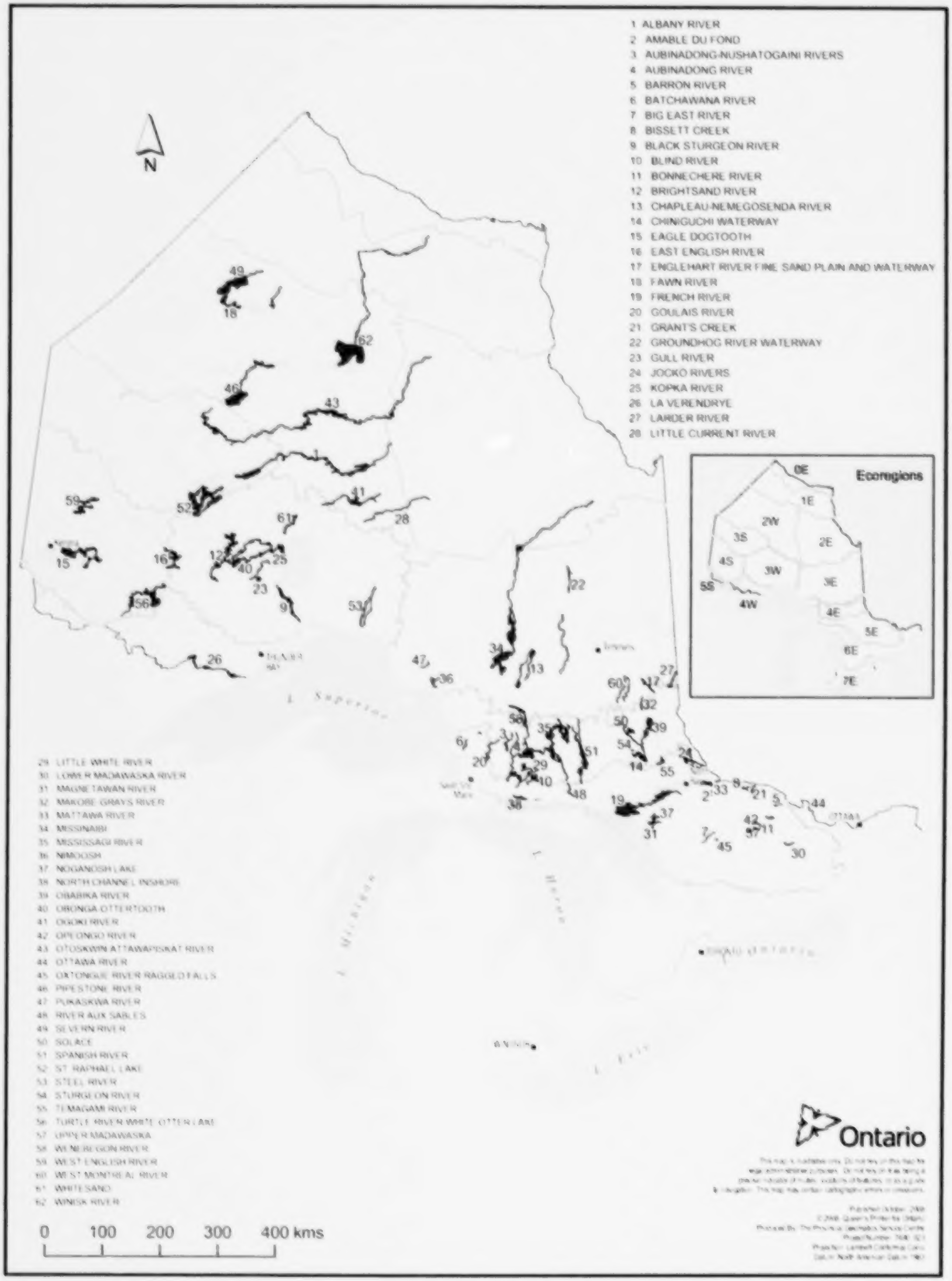
Figure 6-4. Natural Environment Class Provincial Parks in Ontario in relation to Ecoregion boundaries.



Natural Environment Class Provincial Parks in Ontario – Legend

1 ALEXANDER LAKE FOREST
2 ALGOMA HEADWATERS
3 ALGONQUIN
4 ARROWHEAD
5 AUBREY FALLS
6 AWENDA
7 BELL BAY
8 BIGWIND LAKE
9 BISCOTASI LAKE
10 BLACK CREEK
11 BLUE JAY CREEK
12 BLUE LAKE
13 BON ECHO
14 BOYNE VALLEY
15 CHARLESTON LAKE
16 DANA-JOWSEY LAKES
17 ESKER LAKES
18 FORKS OF THE CREDIT
19 FRONTENAC
20 GREENWATER
21 GRUNDY LAKE
22 HALFWAY LAKE
23 HARDY LAKE
24 INDIAN POINT
25 IVANHOE LAKE
26 J. ALBERT BAUER
27 KAKABEKA FALLS
28 KAP-KIG-IWAN
29 KASHABOWIE
30 KAWARTHA HIGHLANDS
31 KENNY FOREST
32 KILLARNEY LAKELANDS AND HEADWATERS
33 KILLBEAR
34 LA CLOCHE
35 LAKE NIPIGON
36 LAKE OF THE WOODS
37 LAKE SUPERIOR
38 LITTLE ABITIBI
39 MACGREGOR POINT
40 MATINENDA
41 MICHIPICOTEN ISLAND
42 MISSISSAGI
43 MONO CLIFFS
44 MURPHYS POINT
45 NAGAGAMISIS
46 NAKINA MORAINE
47 NEYS
48 OBATANGA
49 OJIBWAY
50 PAKWASH
51 PIGEON RIVER
52 PRESQU'ILE
53 PRETTY RIVER VALLEY
54 PUZZLE LAKE
55 QUEEN ELIZABETH II WILDLANDS
56 RESTOULE
57 RONDEAU
58 RUBY LAKE
59 RUSHBROOK
60 SAMUEL DE CHAMPLAIN
61 SANDBANKS
62 SANDBAR LAKE
63 SANDPOINT ISLAND
64 SHORT HILLS
65 SILENT LAKE
66 SILVER FALLS
67 SLATE ISLANDS
68 SLEEPING GIANT
69 THE MASSASAUGA
70 THE PINERY
71 THE SHOALS
72 TIDEWATER
73 WANAPITEI
74 WESTMEATH
75 WHITE LAKE
76 WIDDIFIELD FOREST
77 WINNANGE LAKE
78 WOLF ISLAND
79 WOMAN RIVER FOREST

Figure 6-5. Waterway Class Provincial Parks in Ontario in relation to Ecoregion boundaries.



6.2 Conservation Reserves

Introduction

Conservation Reserves are established to protect natural heritage areas and natural features on public land, while preserving traditional public land uses. The Conservation Reserve was created as a protected area designation in 1994 during the *Keep it Wild Campaign* (MNR, 1995a). Between 1995 and 1998, 29 Conservation Reserves encompassing 63,867 ha were established. One site, the Torrance Barrens Conservation Reserve, was designated by the MNR in 1999 as the first *Dark Sky Reserve* in Canada (FON, 2000). Since the Ontario Government's Lands for Life program between 1997-99, which culminated in the *Ontario Lands for Life Land Use Strategy* (MNR, 1999a), 292 Conservation Reserves (encompassing 1,495,382 ha) have been regulated (Figs. 6-7, 6-8, and 6-9). Conservation Reserves complement the Provincial Parks system by protecting important representative areas of the province. They differ from Provincial Parks because they allow a greater variety of traditional local uses.

Legislation and Policy Basis

Initially, Conservation Reserves were protected by regulation under the *Public Lands Act* and by withdrawal of lands from staking under the *Mining Act*. Currently, Conservation Reserves are managed under the auspices of the *Provincial Parks and Conservation Reserves Act*, which entered into force on September 4, 2007. These protected areas are managed in accordance with the *Conservation Reserves Policy* and appropriate restrictions determined through 'Management Statements' or 'Management Plans' (see MNR, 1997b).

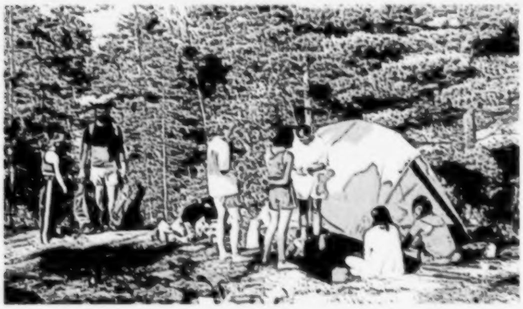


Image by D. Paleczny

Protection Goal and/or Objectives

The purpose of the *Provincial Parks and Conservation Reserves Act* is to "*...permanently protect a system of provincial parks and conservation reserves that includes ecosystems that are representative of all of Ontario's natural regions, protects provincially significant elements of Ontario's natural and cultural heritage, maintains biodiversity and provides opportunities for compatible, ecologically sustainable recreation.*" The objectives of the *Act* are:

- "*To permanently protect representative ecosystems, biodiversity and provincially significant elements of Ontario's natural and cultural heritage and to manage these areas to ensure that ecological integrity is maintained.*
- *To provide opportunities for ecologically sustainable land uses, including traditional outdoor heritage activities and associated economic benefits.*
- *To provide opportunities for residents of Ontario and visitors to increase their knowledge and appreciation of Ontario's natural and cultural heritage.*
- *To facilitate scientific research and to provide points of reference to support monitoring of ecological change on the broader landscape*" (Statutes of Ontario, 2006).

Selection Criteria

Like Provincial Parks, Conservation Reserves are selected to represent the best examples of Ontario's ecosystems and geological features, and to help conserve biodiversity. The five ecological and geological criteria used to help inform the identification, selection, and design of Conservation Reserves are:

1. Representation of terrestrial life science, aquatic life science, and earth science features.
2. Condition, or freedom from anthropogenic modifications.
3. Diversity, or heterogeneity of landscape components and species.
4. Ecological functions, primarily size, shape, connectivity, hydrological functions, and limiting habitat components for species not at risk.
5. Special features such as rare species, specialized habitats, and recognized areas.

These criteria are also applied in the selection of Provincial Parks (see Section 6.1 on page 153). The park class targets described for Provincial Parks do not apply to Conservation Reserves.

Management Objectives and/or Guidelines

Two principles guide all aspects of the planning and management of Ontario's Conservation Reserves:

- *"Maintenance of ecological integrity shall be the first priority and the restoration of ecological integrity shall be considered.*
- *Opportunities for consultation shall be provided"* (Statutes of Ontario, 2006).

Under the auspices of the *Provincial Parks and Conservation Reserves Act*, Conservation Reserves are managed through 'Management Statements' and 'Management Plans'. A Management Statement is a document approved by the Minister that provides a policy or resource management framework that addresses a limited number of non-complex issues or proposals or both for limited capital infrastructure or resource management projects for one or more Provincial Parks or Conservation Reserves or for a combination of them. A Management Plan is a document approved by the Minister that provides a policy and resource management framework that addresses substantial and complex issues or proposals or both for substantial capital infrastructure or resource management projects in one or more Provincial Parks or Conservation Reserves or for a combination of them.

Management activities include:

- **Forest Fire Management:** Forest fire management is carried out in a Conservation Reserve as it is provided on surrounding public lands, unless alternative direction for the control of fire, or the use of fire for management purposes is approved through a Management Statement or a Management Plan.
- **Insect and Disease Control:** Control of insects and diseases may need to be addressed separately for each Conservation Reserve, depending on the nature of the resources or the features being protected, and the nature of the management problem.
- **Wildlife Management:** Wildlife population management, including the management of problem animals, may need to be addressed separately for each Conservation Reserve, depending on the nature of the resources or features being protected, and the nature of the management problem.

In some cases, permitted/restricted activities in Conservation Reserves differ between the pre- and post- Ontario Living Legacy periods (Table 6-5).

Ontario Parks is responsible for the development of Conservation Reserve policy while management of Conservation Reserves is the responsibility of the MNR field organization at the District or local level (there are 24 MNR Districts in Ontario). Management includes development and implementation of regulations under the *Provincial Parks and Conservation Reserves Act*, provision of public information, stewardship, and area security. It also includes authorization and the establishment of conditions on permitted uses and ongoing monitoring of compliance with approved plan direction.

The Degree of Protection for Conservation Reserves and the Corresponding IUCN Protected Area Management Category: A Preliminary Assessment

Conservation Reserves are 'fully protected' areas because protection is the primary objective, the commitment is legislated, they are protected year-round in perpetuity, and they exclude industrial activities and large-scale developments. Conservation Reserves could potentially qualify as IUCN Category Ia, Ib, II, III, IV, or V protected areas. Category assignment will require an assessment of each Conservation Reserve.

Key Contact(s)

Natural Heritage, Lands and Protected Spaces Branch
Ministry of Natural Resources
300 Water Street, 6th Floor
Peterborough, Ontario
K9J 8M5
Telephone: 705-755-1729
Fax: 705-755-1701
Website: www.ontarioparks.com

Table 6-5. A pre- and post-Ontario Living Legacy summary of permitted uses in Conservation Reserves with reference to the *Provincial Parks and Conservation Reserves Act*.

Use	(Pre-Ontario Living Legacy) Existing Conservation Reserves	(Post-Ontario Living Legacy) New Conservation Reserves in the Planning Area
Commercial timber harvest and commercial hydro development.	Not permitted. Exception: Existing hydro commitments in land-use plans can be honoured. New hydro developments are possible for: • Use in Conservation Reserves for CR purposes. • Use within off-grid communities (subject to conditions) with Cabinet approval.	Not permitted. Exception: Existing hydro commitments in land-use plans can be honoured. New hydro developments are possible for: • Use in Conservation Reserves for CR purposes. • Use within off-grid communities (subject to conditions) with Cabinet approval.
Prospecting, staking mining claims, developing mineral interest, or working mines.	Not permitted.	Not permitted.
Bait fishing, commercial fishing, commercial fur harvesting, and wild rice harvesting.	Existing use permitted to continue, unless there are significant demonstrated conflicts. New operations can be considered, subject to a 'test of compatibility.'	Existing use permitted to continue unless there are significant demonstrated conflicts. New operations can be considered, subject to a 'test of compatibility.'
Sport hunting.	Permitted.	Permitted.
Sport fishing.	Permitted, except in Fish Sanctuaries.	Permitted, except in Fish Sanctuaries.
Seasonal recreation camps ('hunt camps').	Existing authorized camps permitted to continue, and may be eligible for extended tenure, but not purchase of the land.	Existing authorized camps permitted to continue, and may be eligible for extended tenure but not purchase of land.
Commercial bear hunting.	Existing use permitted to continue. New operations not permitted.	Existing use permitted to continue. New operations not permitted.
Tourism facilities (for resource-based tourism) and recreational trails.	Existing authorized facilities and trails can continue, unless there are significant demonstrated conflicts. No new tourism facilities permitted. New trails can be considered as part of planning for an individual Confservation Reserve.	Existing authorized facilities and trails (motorized and non-motorized) can continue, unless there are significant demonstrated conflicts. Tourism facilities can apply to upgrade tenure from land use permit to lease. New tourism facilities and trail facilities can be considered as part of planning for an individual Conservation Reserve.
Land disposition.	Sale of lands is not permitted. Renewals of existing leases or land use permits are permitted. Requests for transfer of tenure will be considered in the context of Management Direction. New leases or land use permits are allowed for approved activities. Issuance of new private tenure is not permitted.	Sale of lands is not permitted. Renewals of existing leases or land use permits are permitted. Requests for transfer of tenure will be considered in the context of the Management Direction. New leases or land use permits are allowed for approved activities. Issuance of new private tenure is not permitted.
Forest/mining roads, trails, and utility corridors.	Existing roads can continue to be used. New linear facilities can be considered subject to conditions in the *Provincial Parks and Conservation Reserves Act.*	Existing roads can continue to be used. New linear facilities can be considered subject to conditions in the *Provincial Parks and Conservation Reserves Act.*

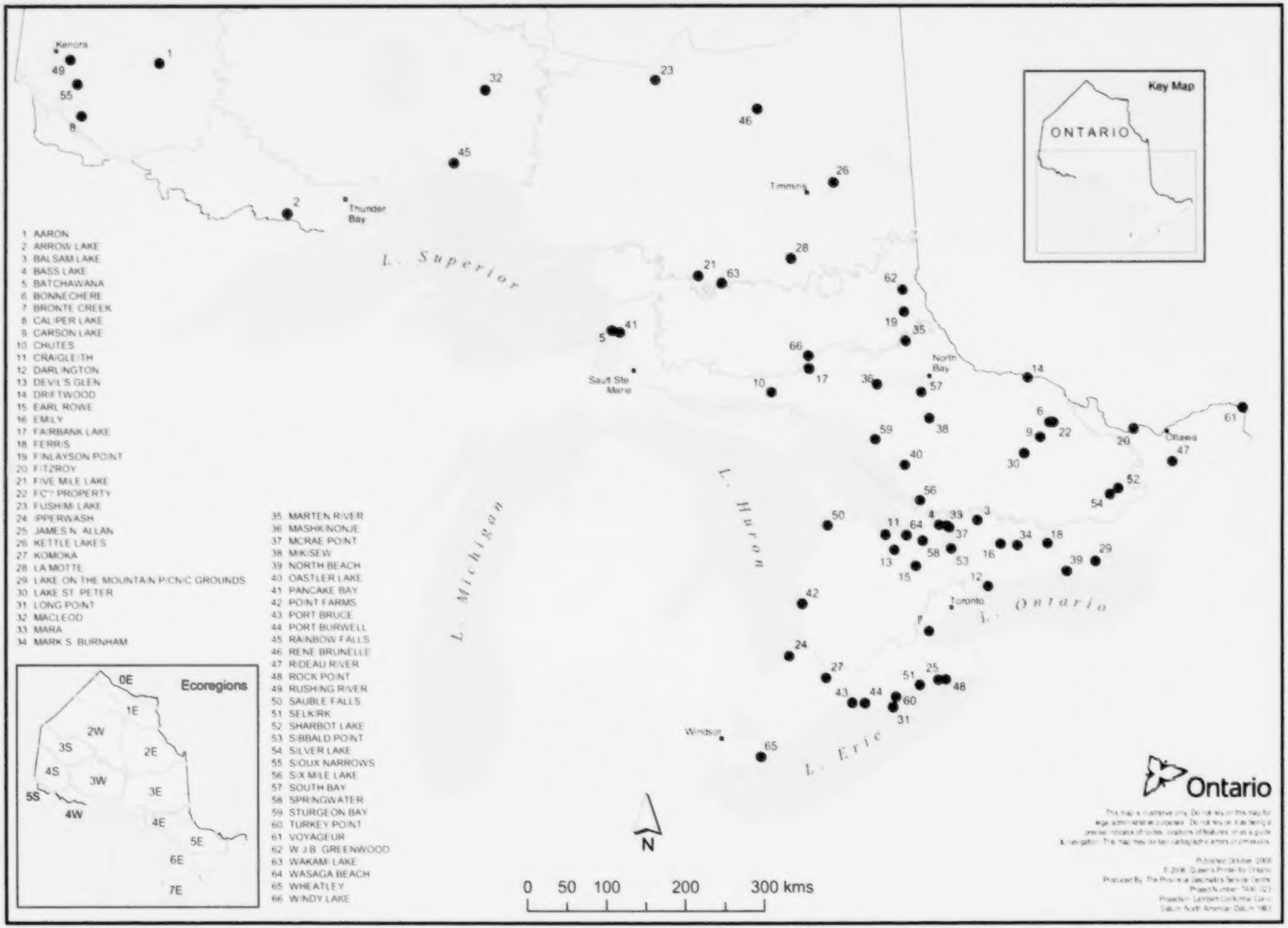


Figure 6-6. Recreation Class Provincial Parks in Ontario in relation to Ecoregion boundaries.

Figure 6-7. Conservation Reserves in northwestern Ontario in relation to Ecoregion boundaries.

Note that the Conservation Reserves on this map are located within MNR's Northwest Region.

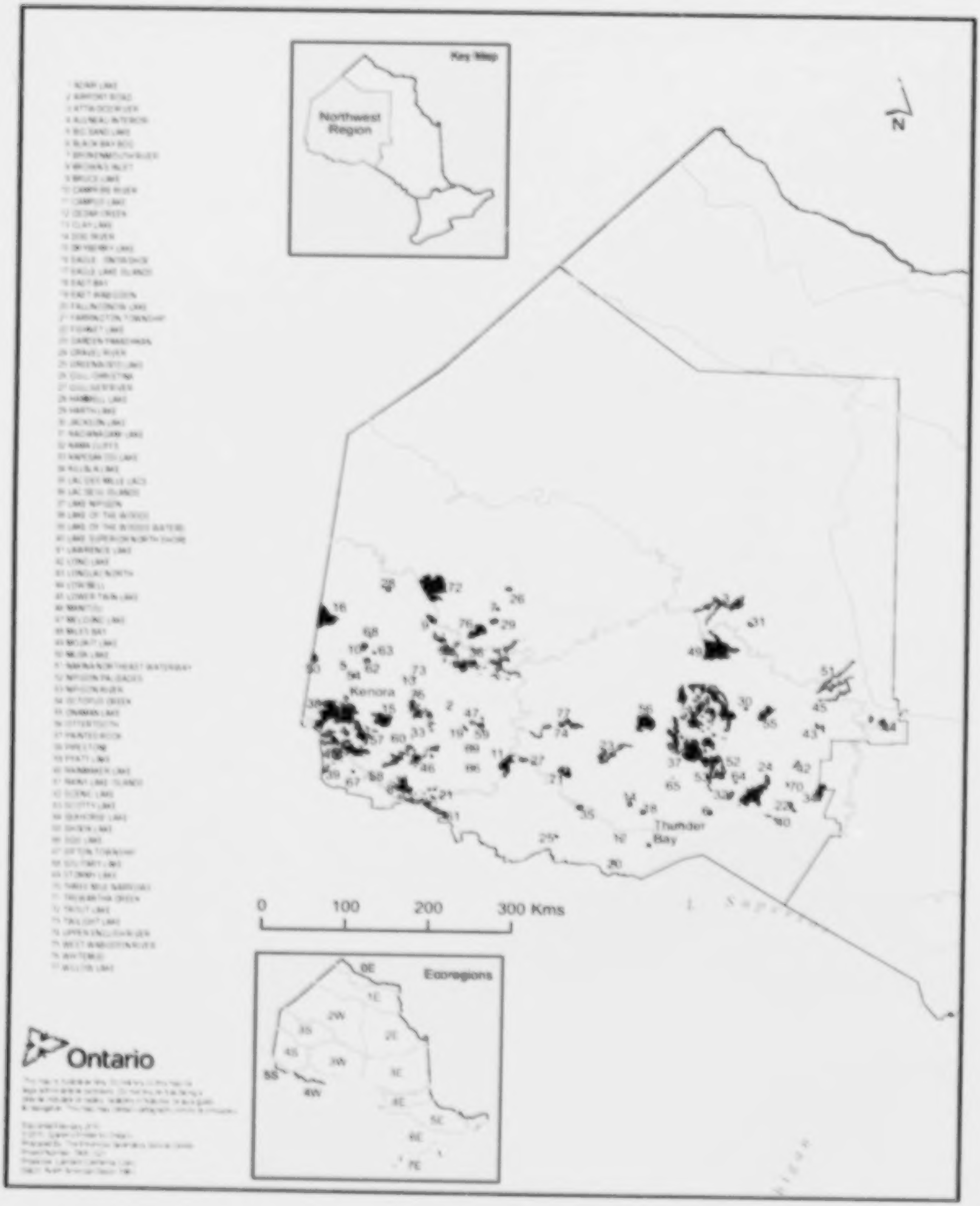
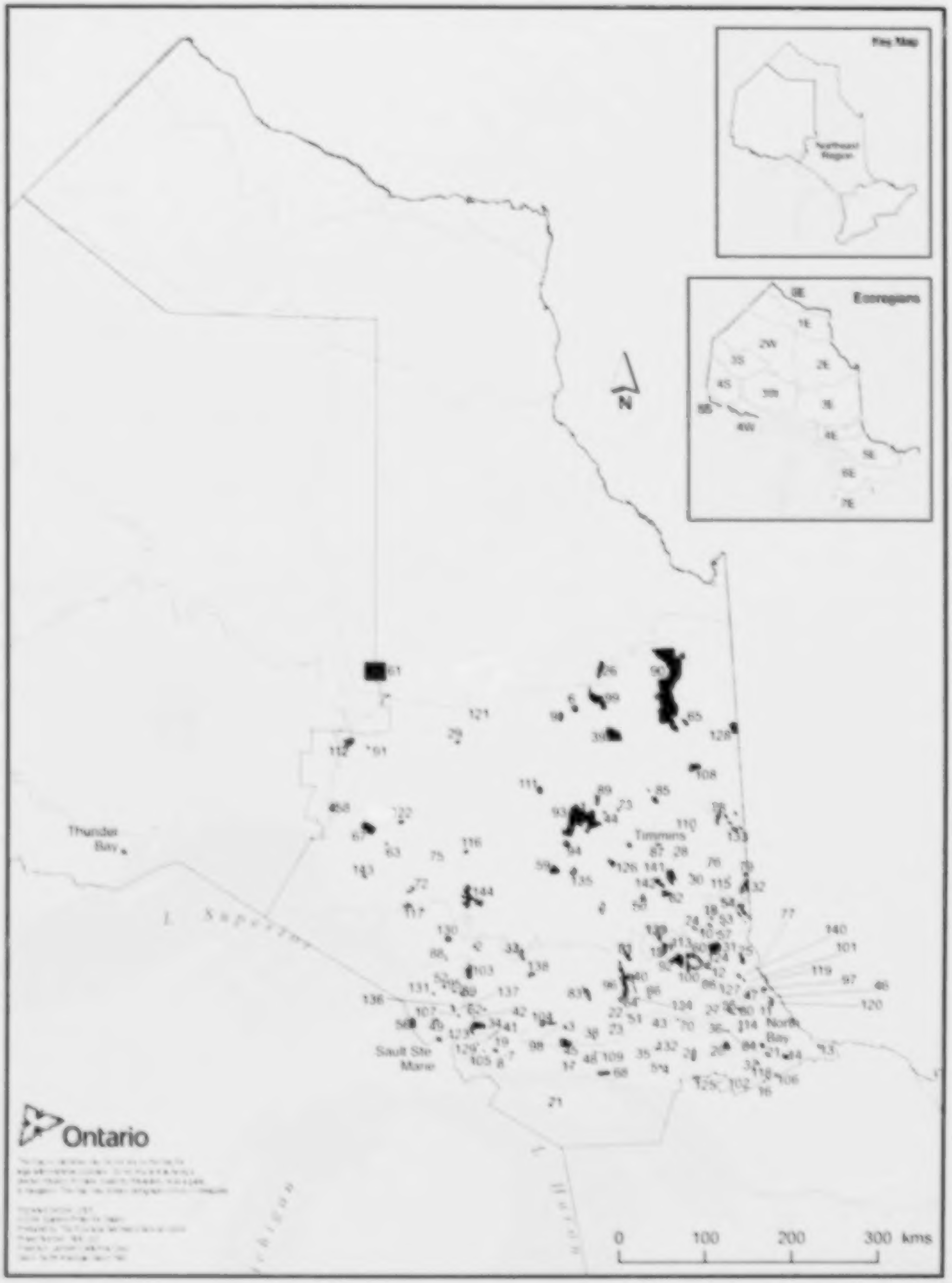


Figure 6-8. Conservation Reserves in northeastern Ontario in relation to Ecoregion boundaries.

Note that the Conservation Reserves on this map are located within MNR's Northeast Region.

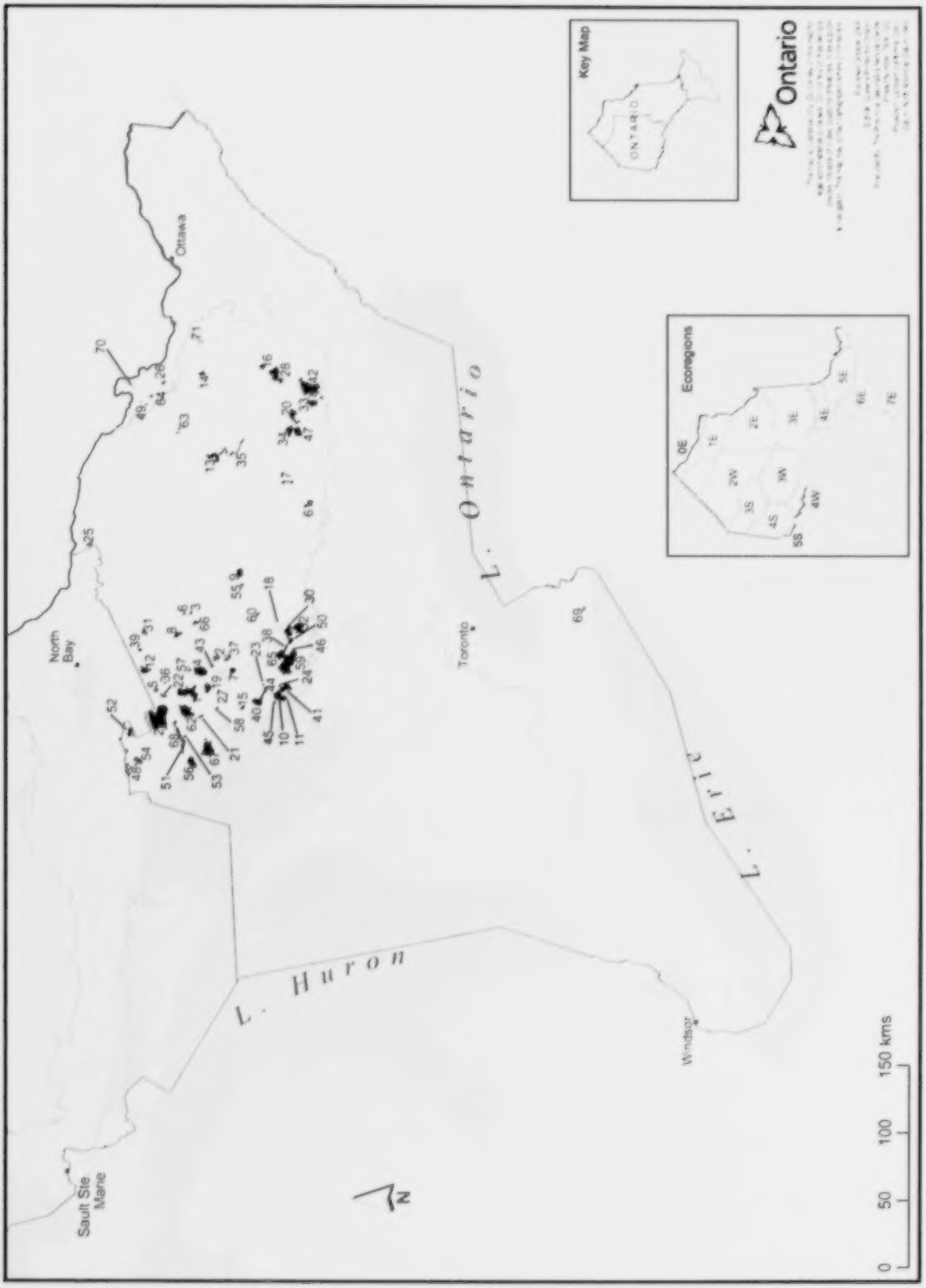


Conservation Reserves in Ontario (MNR's Northeast Region) – Legend

1 AKONESI CHAIN OF LAKES COMPLEX
2 ALM LAKE FOREST
3 ARCHAMBEAU LAKE FOREST
4 ATTLEE
5 ATTLEE CENTRAL FOREST
6 BALLANTYNE LAKE DRUMLINS
7 BASSWOOD LAKE
8 BASSWOOD LAKE HEMLOCK
9 BENNET LAKE ESKER KAME COMPLEX
10 BIG SPRING LAKE BEDROCK
11 BLUE LAKE END MORAINE
12 BOB LAKE
13 BOOM CREEK
14 BOULTER-DEPOT CREEK
15 BRACE CREEK OUTWASH PLAIN
16 BRAY LAKE
17 BRENNAN HARBOUR
18 BRYCE AND CANE TOWNSHIP WETLAND LACUSTRINE
19 BYRNES LAKE WHITE BIRCH
20 CACHE BAY WETLAND
21 CALLANDER BAY WETLAND
22 CARTIER MORAINE
23 CENTRE CREEK OLD GROWTH WHITE PINE
24 CHERRIMAN TOWNSHIP
25 CLIFF LAKE
26 CORAL RAPIDS WETLAND
27 DANA TOWNSHIP JACK PINE FOREST
28 DRIFTWOOD RIVER WHITE CEDAR LACUSTRINE
29 DUBE CREEK ICEBERG KEEL MARKS
30 DUNMORE TOWNSHIP BALSAM FIR OUTWASH DEPOSIT
31 EAST LADY EVELYN LAKE
32 EAST LARDER RIVER BEDROCK CONIFER
33 EAST WENEBEGON FOREST
34 ECHO RIVER HARDWOODS
35 EDEN TOWNSHIP FOREST
36 FIELD TOWNSHIP
37 FISH BAY
38 FLAT CREEK OLD PINE
39 FRASERDALE WETLAND COMPLEX
40 FRIDAY AND SCOTIA LAKES
41 GALBRAITH PEATLAND
42 GARDEN RIVER FOREST
43 GARSON FOREST
44 GEARY TOWNSHIP SHORELINE BLUFF
45 GLENN N. CROMBIE
46 GOD'S LAKE OLD GROWTH WHITE PINE FOREST
47 GOODERHAM OLD GROWTH WHITE PINE FOREST
48 GOUGH OUTWASH FOREST
49 GOULAIS RIVER BEACH RIDGES
50 GRASSY RIVER HALLIDAY LAKE FORESTS & LOWLANDS
51 GREEN LAKE OLD PINE
52 HARMONY FOREST
53 HENWOOD TOWNSHIP FOREST AND WETLAND
54 HILLIARDTON MARSH
55 HOLDRIDGE CREEK
56 ILE PARISIENNE
57 INDIAN BAY SOUTH
58 ISKO DEWABO LAKE COMPLEX
59 IVANHOE RIVER CLAY PLAIN
60 JIM EDWARDS LAKE
61 JOG LAKE
62 JOLLINEAU
63 KAKAKIWIBIK ESKER
64 KAWAWIA LAKE OLD GROWTH
65 KESAGAMI RIVER OUTWASH PLAIN
66 KITCHENER TOWNSHIP MORTON LAKE
67 KWINKWAGA GROUND MORAINE UPLANDS
68 LA CLOCHE RIDGE
69 LA VERENDYRE/OGIDAKI
70 MACLENNAN ESKER FOREST
71 MACS BAY
72 MAGPIE RIVER TERRACES
73 MAHAFFY TOWNSHIP GROUND MORAINE
74 MAKOBE GRAYS ICE MARGIN
75 MANITOU MOUNTAIN
76 MASONVILLE BERNHARDT MUSKEG MAPLE MORAINE
77 MATABITCHUAN RIVER
78 MCDOUGAL POINT PENINSULA
79 MCGARRY TOWNSHIP FOREST
80 MCLAREN FOREST
81 METEOR LAKE OUTWASH FANS
82 MISTINIKON LAKE UPLANDS
83 MOZHABONG LAKE
84 MUDCAT LAKE FOREST
85 NAHMA BOG AND POOR FENS
86 NARROWS ISLAND
87 NIGHT HAWK LAKE SHORELINE BLUFFS
88 NORTH MONTREAL RIVER MORAINE
89 NORTH MUSKEGO RIVER MIXED FOREST
90 NORTH OF THE NORTH FRENCH RIVER
91 NORTH THORNHEN LAKE MORAINE
92 NORTH YORSTON
93 NORTHERN CLAYBELT FOREST COMPLEX
94 NOVA TOWNSHIP CLAY PLAIN PEATLANDS
95 O'CONNOR
96 ONAPING LAKE
97 OTTERTAIL CREEK
98 OUR COLLEAGUES
99 PINARD MORAINE
100 PINETORCH LAKE
101 RABBIT LAKE WEST
102 RAGANOOTER LAKE
103 RANGER NORTH
104 RAWHIDE LAKE
105 ROSE LAKE DUNE PEATLAND COMPLEX
106 SAUSAGE LAKE FOREST
107 SEARCHMONT SOUTH FOREST
108 SEGUIN RIVER CONIFER AND FENS
109 SHAKESPEARE FOREST
110 SHALLOW RIVER POPLAR OUTWASH
111 SHANLY CREEK DRUMLINS
112 SLIM JIM LAKE
113 SMITH LAKE
114 SMOKY RIVER HEADWATERS
115 SOUTH GRASSY LAKE OUTWASH
116 SOUTH GREENHILL LAKE SAND DELTA
117 SOUTH MICHIPICOTEN RIVER-SUPERIOR SHORELINE
118 SOUTH RIVER FOREST
119 SOUTH TAMISKAMING SHORELINE
120 SPRING/CUT LAKE ESKER
121 STE. THERESE GROUND MORAINE
122 STRICKLAND RIVER MIXED FOREST WETLAND
123 STUART LAKE WETLAND
124 SUGAR LAKE
125 SWAN LAKE
126 TATACHIKAPIKA RIVER PLAIN
127 TEMAGAMI ISLAND NORTH
128 TEMBEC WETLAND COMPLEX
129 THESSALON RIVER DELTA/ROCK LAKE RED OAK
130 TIKAMAGANDA LAKE
131 TILLEY CREEK WEST
132 TILTON FOREST
133 TROLLOPE LAKE BURNT HILL POPLAR SPRUCE
134 VENETIAN CREEK OLD PINE
135 VIMY LAKE UPLANDS
136 WABOS NORTH
137 WABOS SOUTH
138 WAGONG LAKE FOREST
139 WAPUS CREEK
140 WHITE BEAR FOREST
141 WHITEFISH AND EAST WHITEFISH LAKES SANDY TILL UPLAND
142 WHITEFISH RIVER SANDY TILL
143 WIDGEON LAKE MORAINE
144 WINDERMERE GOLDIE LAKE

Figure 6-9. Conservation Reserves in southern Ontario in relation to Ecoregion boundaries.

Note that the Conservation Reserves on this map are located within MNR's Southern Region.



Conservation Reserves in Ontario (MNR's Southern Region) – Legend

1 AHMIC FOREST AND ROCK BARRENS
2 AXE LAKE WETLAND
3 BEAR CREEK
4 BEAR LAKE PEATLAND
5 BIG DEER LAKE
6 BRIDGE LAKE OUTWASH PLAIN FOREST
7 CARDWELL TOWNSHIP OLD GROWTH
8 CHAIN LAKES
9 CLEAR LAKE
10 COGNASHENE LAKE
11 COGNASHENE POINT
12 COMMANDA CREEK
13 CONROYS MARSH
14 CONSTANT CREEK SWAMP AND FEN
15 CRANE LAKE FOREST
16 CROTCH LAKE
17 CROWE RIVER SWAMP
18 DRAPER TOWNSHIP
19 DUTCHER LAKE
20 ELZEVIR PEATLANDS
21 FERGUSON TOWNSHIP WHITE PINE FOREST
22 FERRIE TOWNSHIP FOREST
23 FREEMAN TOWNSHIP SUGAR MAPLE FOREST
24 GIBSON RIVER
25 GREENBOUGH ESKER
26 HAWKINS PROPERTY
27 HORSESHOE LAKE
28 HUNGRY LAKE
29 ISLAND LAKE FOREST AND BARRENS
30 JEVINS & SILVER LAKE
31 JOLY TOWNSHIP HARDWOODS
32 KAHSHE LAKE BARRENS
33 KALADAR JACKPINE BARRENS
34 LINGHAM LAKE
35 LITTLE MISSISSIPPI RIVER
36 LITTLE SPRING LAKE
37 LONG LAKE – LANCELOT CREEK
38 LOON LAKE WETLAND
39 LOUCK LAKE WETLAND
40 LOWER MOON RIVER
41 MCCRAE LAKE
42 MELLON LAKE
43 MONTEITH FOREST
44 MOON RIVER
45 MOREAU'S BAY
46 MORRISON LAKE WETLAND
47 MOUNT MORIAH
48 MOWAT TOWNSHIP HEMLOCK FOREST
49 MUD LAKE/CREEK
50 MULDREW BARRENS
51 NAISCOOT FOREST
52 NORTHERN MCCONKEY
53 OXBOW LAKE FOREST
54 PAKESHKAG RIVER FOREST
55 PLASTIC LAKE AND DAWSON PONDS
56 POINTE AU BARIL FORESTS AND WETLANDS
57 RYERSON TOWNSHIP FOREST
58 SEGUIN RIVER
59 SEVERN RIVER
60 SHACK CREEK WETLAND
61 SHARPE BAY FEN
62 SHAWANAGA LAKE
63 SILVER CREEK PEATLAND
64 SNAKE RIVER MARSH
65 TORRANCE BARRENS
66 UPPER RAFT LAKE
67 UPPER SHEBESHEKONG WETLAND
68 WAHWASHKESH – NAISCOOT
69 WAINFLEET BOG
70 WESTMEATH BOG
71 WHITE LAKE

Image by P. Kor

6.3 Wilderness Areas

Introduction

The Wilderness Areas program was created in the 1950s to preserve areas of natural and historical significance (Killan, 1993:377). The *Wilderness Areas Act* was proclaimed in 1959, and by July 1961, 35 Wilderness Areas had been identified by the Department of Lands and Forests (now MNR) and the Federation of Ontario Naturalists (now Ontario Nature). An additional four Wilderness Areas were added to the suite of sites by 1972 (Table 6-6). The *Wilderness Areas Act* was significant in that it was one of the first Canadian statutes to recognize the concept of 'nature reserves' (Killan, 1993:134-135). However, given the limited contribution that these areas made to wilderness, new Wilderness Areas have not been added since 1972. Formal protection of wilderness in Ontario is achieved in Provincial Parks, Conservation Reserves, and National Parks.

Two Wilderness Areas were rescinded in 1984 and four in 1993. In total, 33 Wilderness Areas encompassing 61,173 ha still exist. Of these 33 areas, 22 (encompassing 60,334 ha, or 98.6% of the total area protected as Wilderness Area in Ontario) are located inside 12 Provincial Parks and five Conservation Reserves. The remaining 11 Wilderness Areas on Crown land encompass 839 ha (Fig. 6-10).

Legislation and Policy Basis

Wilderness Areas are designated under the *Wilderness Areas Act*, which provides protection of Wilderness Areas that are smaller than 260 ha. The natural assets contained in Wilderness Areas greater than 260 ha may be subject to development and utilization. Historically, no formal policies were developed for Wilderness Areas, and when located inside a Provincial Park or Conservation Reserve, Wilderness Areas have been protected according to the values and policies used to manage parks and reserves.

Image by T.J. Beechey

Protection Goal and/or Objectives

Wilderness Areas were established for the:

- Preservation of land in its natural state for research and educational activities.
- Protection of the flora and fauna.
- Improvement of the area for its historical, aesthetic, scientific, or recreational value (Kor et al., in prep.).

Selection Criteria

Wilderness Areas were nominated on the basis of their historical, aesthetic, scientific, or recreational values (Table 6-7). Selection criteria included:

- Examples of ecosystems with characteristic flora and fauna.
- Unique flora and fauna.
- Significant geological features.
- Significant geomorphological features.
- Wildlife habitat.
- Scenic qualities (Kor et al., in prep.).

Table 6-6. The original Wilderness Areas in Ontario and their disposition.

Wilderness Area	Area (ha)	Created	Designation at the Time of Creation	Rescinded	Added to Park or CR	Current Status on Crown Land or in a Park or Conservation Reserve
1. Abitibi Lake Narrows	3.95	19/09/60	Crown land	——	1999	McDougall Point Peninsula Conservation Reserve
2. Agate Island[1]	59.94	26/07/61	Crown land	——	——	Crown Land
3. Bat Cave	77.69	19/09/60	Crown land	——	1975	Cavern Lake Provincial Park
4. Blair Township	60.75	21/09/64	Crown land	——	——	North Parry Sound Area Recreation EMA (E119r)
5. Cape Henrietta-Maria	58,275.00	19/09/60	Crown land	——	1970	Polar Bear Provincial Park
6. Crater Lakes	222.75	19/09/60	Crown land	——	1964	Killarney Provincial Park
7. Derby Lake	182.25	27/01/66	Crown land	——	——	Crown Land
8. Echo Township	199.26	19/09/60	Crown land	——	——	Crown Land
9. Eighteen Mile Island	195.21	19/09/60	Crown land	——	——	Enhanced Management Area E168a
10. Fairy Point	259.20	19/09/60	Crown land	——	1970	Missinaibi Provincial Park
11. Ganley Harbour	2.63	19/09/60	Crown land	——	1999	Lake Superior Highlands Conservation Reserve
12. Hilton Township	39.29	19/09/60	Crown land	——	——	Crown Land
13. Kishkebus Lake	134.46	19/09/60	Crown land	——	1971	Bon Echo Provincial Park
14. Lac La Croix	11.73	03/05/72	Crown land	——	——	Crown Land
15. Massacre Island	31.59	19/09/60	Crown land	1993	1999	Lake of the Woods Conservation Reserve
16. McCrae Lake	402.57	19/09/60	Crown land	——	1999	McCrae Lake Conservation Reserve
17. Michipicoten	213.03	10/05/71	Crown land	1984	1982	Michipicoten Provincial Park
18. New Brunswick House Post	55.49	26/07/61	Crown land	——	1970	Missinaibi Provincial Park
19. Old Brunswick House	20.66	19/09/60	Crown land	——	1970	Missinaibi Provincial Park
20. Old Fort Albany	4.46	19/09/60	Crown land	——	——	Crown Land
21. Outer Barn Island	65.21	19/09/60	Crown land	——	1999	Lake Nipigon Conservation Reserve
22. Pinery – Dune Forest	52.45	26/07/61	PP – 1957	——	——	The Pinery Provincial Park
23. Pinery – Flood Plain	10.13	26/07/61	PP – 1957	——	——	The Pinery Provincial Park
24. Pinery – Forest	79.79	26/07/61	PP – 1957	——	——	The Pinery Provincial Park
25. Pinery – Shore	30.38	26/07/61	PP – 1957	——	——	The Pinery Provincial Park
26. Presqu'ile Islands	130.41	26/07/61	PP – 1922	——	——	Presqu'ile Provincial Park
27. Richardson Harbour Island	17.01	19/09/60	Crown land	1984	1984	Pukaskwa National Park
28. Rondeau Provincial Park	226.70	19/09/60	PP – 1894	——	——	Rondeau Provincial Park
29. Sankey Township	29.16	21/09/64	Crown land	——	——	Crown Land
30. Shoal Lake	5.83	27/08/64	Crown land	——	——	Crown Land
31. Sioux Mountain	11.51	19/09/60	Crown land	1993	——	Crown Land
32. Sleeping Giant	256.37	19/09/60	PP – 1944	——	——	Sleeping Giant Provincial Park
33. Sutton Lake Gorge	50.63	19/09/60	Crown land	——	——	Crown Land
34. The Jones Road	259.20	19/09/60	Crown land	1993	——	Crown Land
35. Tickell	0.10	19/09/60	Crown land	1993	——	Crown Land
36. Timber Island	40.91	08/02/62	Crown land	——	1985	Timber Island Provincial Park
37. Turkey Point	21.40	19/09/60	PP – 1959	——	——	Turkey Point Provincial Park
38. White Otter Lake	16.61	19/09/60	Crown land	——	1989	Turtle River Provincial Park
39. Whitefish Falls	107.73	19/09/60	Crown land	——	1970	Missinaibi Provincial Park
Total	61,706.25					

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[1] The Agate Island Wilderness Area will be included in the Lake Superior National Marine Conservation Area (see Section 5.2 on page 122).

Source: Kor et al. (in prep.), MNR (No Date[a]), MNR (1999a).

Management Objectives and/or Guidelines

No management guidelines have been prepared in support of the *Wilderness Areas Act*. While a Wilderness Area can be any size, the *Wilderness Areas Act* does not limit the development or use of natural resources in Wilderness Areas greater than 260 ha. Where possible, Wilderness Areas located within the boundaries of Provincial Parks and Conservation Reserves are zoned and protected according to the values for which they were originally selected (Kor et al., in prep.).

The Degree of Protection for Wilderness Areas and the Corresponding IUCN Protected Area Management Category: A Preliminary Assessment

Wilderness Areas equal to or less than 260 ha are 'fully protected' areas because protection is the primary objective, the commitment is legislated, they are protected year-round in perpetuity, and they exclude industrial activities and large-scale developments. Wilderness areas smaller than 260 ha qualify as IUCN Category III protected areas. Each Wilderness Area remaining on Crown land outside of a Provincial Park or Conservation Reserve encompasses less than 260 ha, and therefore qualifies as a 'fully protected' area in the IUCN classification system.

Image by D. Paleczny

Key Contact(s)

Natural Heritage, Lands and Protected Spaces Branch
Ministry of Natural Resources
300 Water Street, 6th Floor
Peterborough, Ontario
K9J 8M5
Telephone: 705-755-1729
Fax: 705-755-1701

Figure 6-10. Wilderness Areas in Ontario in relation to Ecoregion boundaries.

Note that the Agate Island Wilderness Area will be included in the Lake Superior National Marine Conservation Area (see Fig. 5-2 on page 122).

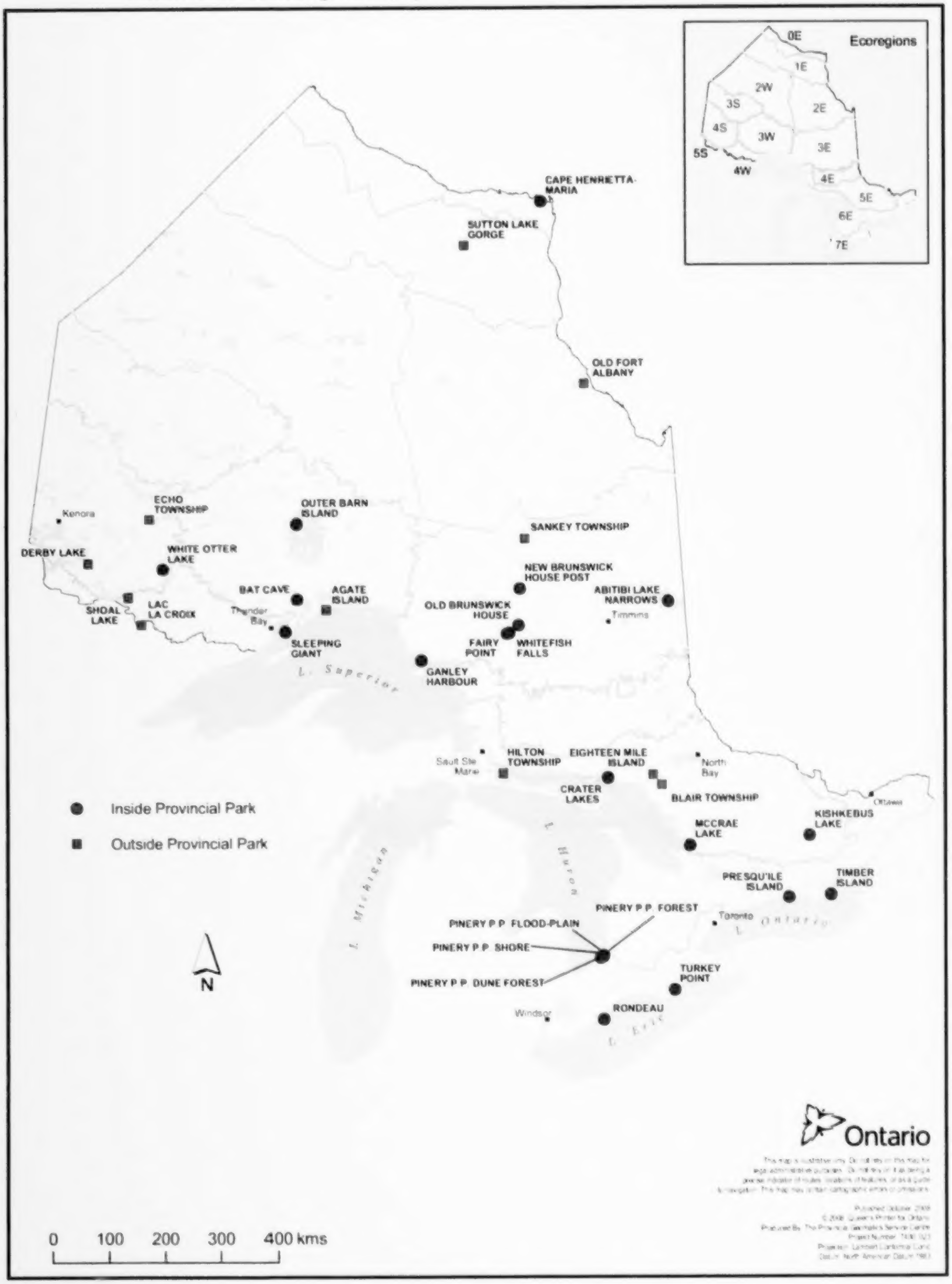


Table 6-7. A summary of values identified for the original Wilderness Areas.

Wilderness Area	Values						
	Historical	Recreational	Research	Education	Natural Heritage (Biological)	Natural Heritage (Geological)	Seed Production
1. Abitibi Lake Narrows	✦						
2. Agate Island[1]		✦					
3. Bat Cave					✦		
4. Blair Township					✦		
5. Cape Henrietta-Maria					✦		
6. Crater Lakes	✦						
7. Derby Lake					✦		
8. Echo Township			✦	✦			✦
9. Eighteen Mile Island		✦	✦				
10. Fairy Point	✦						
11. Ganley Harbour	✦						
12. Hilton Township				✦			
13. Kishkebus Lake		✦					
14. Lac La Croix					✦		
15. Massacre Island	✦						
16. McCrae Lake		✦					
17. Michipicoten		✦			✦		
18. New Brunswick House Post	✦						
19. Old Brunswick House	✦						
20. Old Fort Albany	✦						
21. Outer Barn Island						✦	
22. Pinery – Dune Forest		✦			✦		
23. Pinery – Flood Plain		✦			✦		
24. Pinery – Forest		✦			✦		
25. Pinery – Shore		✦			✦		
26. Presqu'ile Islands					✦		
27. Richardson Harbour Island					✦		
28. Rondeau Provincial Park					✦		
29. Sankey Township					✦		
30. Shoal Lake	✦						
31. Sioux Mountain	✦						
32. Sleeping Giant		✦			✦		
33. Sutton Lake Gorge					✦		
34. The Jones Road					✦		
35. Tickell					✦		
36. Timber Island					✦		
37. Turkey Point					✦		
38. White Otter Lake	✦						
39. Whitefish Falls		✦					

[1] The Agate Island Wilderness Area will be included in the Lake Superior National Marine Conservation Area (see Section 5.2 on page 122).

Source: Kor et al. (in prep.), MNR (No Date[a]), MNR (1999a).

6.4 Forest Reserves

Introduction

The Forest Reserve is a recent designation arising out of the *Ontario Living Legacy Land Use Strategy* (MNR, 1999a). Forest Reserves are areas where the protection of natural heritage and special landscapes is a priority, but where some resource use can take place with appropriate operating conditions. This designation has been applied to a relatively small number of areas where there are pre-existing mining lands or aggregate permits within recommended Provincial Parks and Conservation Reserves. The intention is that these lands will be added to the Provincial Park or Conservation Reserve system if a mining claim or aggregate permit is retired through normal processes. Eighty-two Forest Reserves (encompassing 82,854 ha) have been designated to date through the land-use planning process (Table 6-8, Fig. 6-11) (MNR, 1999a, 2006b). Because of the complexities resulting from protection proposals that overlap with a pre-existing mining claim or lease, a land-use planning process is nearing completion to reduce the number and area of Forest Reserves.

Legislation and Policy Basis

Forest Reserves are not regulated. Instead, a variety of existing provincial Acts and regulations (e.g., the *Public Lands Act)* are used to care for these areas. Policies are similar to those used for Conservation Reserves with the exception that mining and related access is allowed (MNR, 1999a).

Protection Goal and/or Objectives

The intention is that these lands will be added to the Provincial Parks system or the Conservation Reservation program if a mining claim or lease is retired (MNR, 1999a).

Selection Criteria

Forest Reserves are selected with the same gap analysis approach used to select Provincial Parks and Conservation Reserves (see Crins and Kor, 1998, 2000).

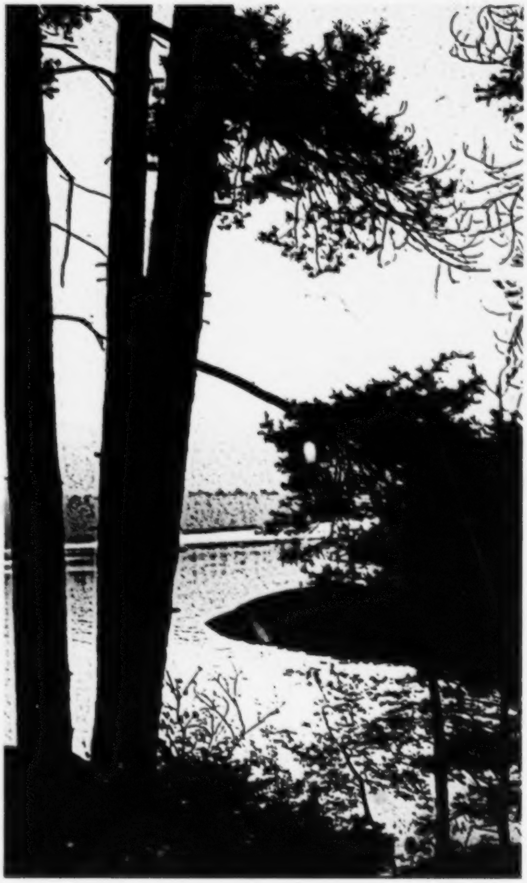
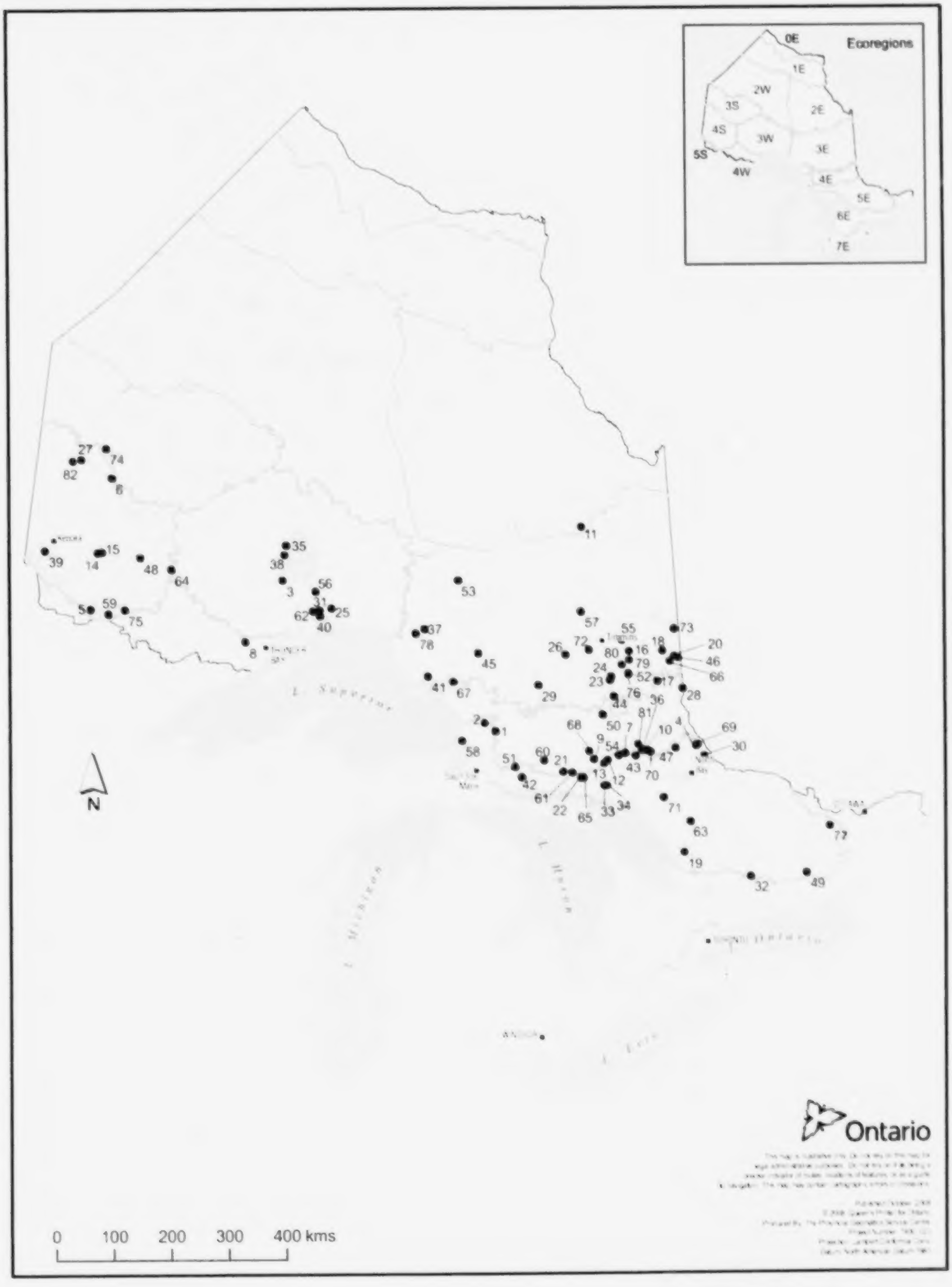


Image by D. Paleczny

Management Objectives and/or Guidelines

Policies for Forest Reserves are similar to the policies developed for the new Conservation Reserves, except that mining (and related access) is permitted. Commercial forest harvesting, new hydroelectric development, and peat extraction are not permitted, but most other resource and recreational uses may be permitted, provided they are consistent with the values that are being protected. Aggregate extraction is not permitted except where there is an existing aggregate permit, or aggregate is required in support of mineral exploration or mining within the Forest Reserve and there are no feasible sources outside of the Forest Reserve (MNR, 1999a).

Figure 6-11. Forest Reserves in Ontario in relation to Ecoregion boundaries.



Forest Reserves in Ontario – Legend

1	ALGOMA HEADWATERS PROVINCIAL PARK
2	BATCHAWANA RIVER PROVINCIAL PARK
3	BLACK STURGEON RIVER PROVINCIAL PARK
4	BLUE LAKE END MORAINE CONSERVATION RESERVE
5	BROWN'S INLET CONSERVATION RESERVE
6	BRUCE LAKE CONSERVATION RESERVE
7	CAPREOL/HANMER DELTA FOREST RESERVE
8	CEDAR CREEK CONSERVATION RESERVE
9	CENTRE CREEK OLD GROWTH WHITE PINE CONSERVATION RESERVE
10	CHINIGUCHI WATERWAY PROVINCIAL PARK
11	CORAL RAPIDS WETLAND CONSERVATION RESERVE
12	COW LAKE FOREST RESERVE
13	DOWLING/FAIRBANK FOREST RSERVE
14	EAGLE DOGTOOTH PROVINCIAL PARK
15	EAGLE LAKE ISLANDS CONSERVATION RESERVE
16	ELSPETH LAKE WHITE BIRCH OUTWASH CONSERVATION RESERVE
17	ENGLEHART RIVER FINE SAND PLAIN AND WATERWAY PROVINCIAL PARK
18	ESKER LAKES PROVINCIAL PARK ADDITION
19	FREEMAN TOWNSHIP SUGAR MAPLE FOREST CONSERVATION RESERVE
20	GEM LAKE MAPLE BEDROCK PROVINCIAL PARK
21	GLENN N. CROMBIE CONSERVATION RESERVE
22	GOUGH OUTWASH FOREST CONSERVATION RESERVE
23	GRASSY RIVER MOND LAKE LOWLANDS AND FERRIS LAKE UPLANDS PROVINCIAL PARK (NATURE RESERVE CLASS)
24	GRASSY RIVER HALLIDAY LAKE FORESTS & LOWLANDS CONSERVATION RESERVE
25	GRAVEL RIVER CONSERVATION RESERVE
26	GROUNDHOG RIVER WATERWAY PROVINCIAL PARK
27	HAMMELL LAKE CONSERVATION RESERVE
28	HILLIARDTON MARSH CONSERVATION RESERVE
29	IVANHOE LAKE PROVINCIAL PARK ADDITION
30	JOCKO RIVERS PROVINCIAL PARK
31	KAMA CLIFFS CONSERVATION RESERVE
32	KAWARTHA HIGHLANDS SIGNATURE SITE PARK ADDITION
33	KILLARNEY LAKELANDS AND HEADWATERS PROVINCIAL PARK
34	KILLARNEY PROVINCIAL PARK ADDITION
35	KOPKA RIVER PROVINCIAL PARK (WATERWAY CLASS)
36	KUKAGAMI LAKE FOREST RESERVE
37	KWINKWAGA GROUND MORAINE UPLANDS CONSERVATION RESERVE
38	LAKE NIPIGON CONSERVATION RESERVE
39	LAKE OF THE WOODS CONSERVATION RESERVE
40	LAKE SUPERIOR ARCHIPELAGO CONSERVATION RESERVE
41	LAKE SUPERIOR HIGHLANDS CONSERVATION RESERVE
42	LITTLE WHITE RIVER PROVINCIAL PARK (WATERWAY CLASS)
43	MACLENNAN ESKER FOREST CONSERVATION RESERVE
44	MACMURCHY TOWNSHIP END MORAINE PROVINCIAL PARK (NATURE RESERVE CLASS)
45	MANITOU MOUNTAIN CONSERVATION RESERVE
46	MCGARRY TOWNSHIP FOREST CONSERVATION RESERVE
47	MCLAREN FOREST CONSERVATION RESERVE
48	MELGUND LAKE CONSERVATION RESERVE
49	MELLON LAKE CONSERVATION RESERVE
50	METEOR LAKE OUTWASH FANS CONSERVATION RESERVE
51	MISSISSAGI RIVER PROVINCIAL PARK ADDITION
52	MISTINIKON LAKE UPLANDS CONSERVATION RESERVE
53	NAGAGAMISIS & NAGAGAMI LAKE PROVINCIAL PARK ADDITIONS
54	NELSON DELTA EAST FOREST RESERVE
55	NIGHT HAWK LAKE SHORELINE BLUFFS CONSERVATION RESERVE
56	NIPIGON PALISADES CONSERVATION RESERVE
57	NORTH MUSKEGO RIVER MIXED FOREST CONSERVATION RESERVE
58	PANCAKE BAY PROVINCIAL PARK ADDITION
59	RAINY LAKE ISLANDS CONSERVATION RESERVE
60	RAWHIDE LAKE CONSERVATION RESERVE
61	RIVER AUX SABLES PROVINCIAL PARK
62	RUBY LAKE PROVINCIAL PARK
63	RYERSON TOWNSHIP FOREST CONSERVATION RESERVE
64	SANDBAR LAKE PROVINCIAL PARK ADDITION
65	SHAKESPEARE FOREST CONSERVATION RESERVE
66	SOUTH GRASSY LAKE OUTWASH CONSERVATION RESERVE
67	SOUTH MICHIPICOTEN RIVER SUPERIOR SHORELINE CONSERVATION RESERVE
68	SPANISH RIVER PROVINCIAL PARK
69	SPRING/CUT LAKE ESKER CONSERVATION RESERVE
70	STURGEON RIVER PROVINCIAL PARK ADDITIONS
71	SWAN LAKE CONSERVATION RESERVE
72	TATACHIKAPIKA RIVER PLAIN CONSERVATION RESERVE
73	TROLLOPE LAKE BURNT HILL POPLAR SPRUCE CONSERVATION RESERVE
74	TROUT LAKE CONSERVATION RESERVE
75	TURTLE RIVER WHITE OTTER LAKE PROVINCIAL PARK ADDITION (WATERWAY CLASS)
76	WEST MONTREAL RIVER PROVINCIAL PARK
77	WHITE LAKE CONSERVATION RESERVE
78	WHITE LAKE PROVINCIAL PARK ADDITION
79	WHITEFISH AND EAST WHITEFISH LAKES SANDY TILL UPLAND CONSERVATION RESERVE
80	WHITEFISH RIVER SANDY TILL CONSERVATION RESERVE
81	WOLF LAKE OLD GROWTH FOREST RESERVE
82	WOODLAND CARIBOU PROVINCIAL PARK ADDITION

Table 6-8. Forest Reserves in Ontario.

Forest Reserve	Area (ha)	Forest Reserve	Area (ha)
Algoma Headwaters	627	Little White River	38
Batchawana River	76	MacLennan Esker Forest	11
Black Sturgeon River	381	MacMurchy Township End Moraine	23
Blue Lake End Moraine	19	Manitou Mountain	210
Browns Inlet	11	McGarry Township Forest	90
Bruce Lake	262	McLaren Forest	17
Capreol/Hanmer Delta	213	Melgund Lake	113
Cedar Creek	65	Mellon Lake	483
Centre Creek Old Growth White Pine	30	Meteor Lake Outwash Fans	14
Chiniguchi	2,602	Mississagi River	6
Coral Rapids Wetland	1,044	Mistinikon Lake Uplands	400
Cow Lake	498	Nagagamisis and Nagagami Lake	29,805
Dowling/Fairbank	999	Nelson Delta East	243
Eagle – Dogtooth	92	Night Hawk Lake Shoreline Bluffs	663
Eagle Lake Islands	8	Nipigon Palisades	43
Elspeth Lake White Birch Outwash	226	North Muskego River Mixed Forest	6
Englehart River Fine Sand Plain	5	Pancake Bay	27
Esker Lakes	13	Rainy Lake Islands	31
Freeman Township Sugar Maple Forest	64	Rawhide Lake	139
Gem Lake Maple Bedrock	59	River aux Sables	309
Glenn N. Crombie	61	Ruby Lake	138
Gough Outwash Forest	22	Ryerson Township Forest	50
Grassy River Halliday Lake Forest & Lowlands	514	Sandbar Lake	28
Grassy River Mond Lake Lowlands & Ferris Lake Uplands	51	Shakespeare Forest	785
Groundhog River Waterway	12,318	South Grassy Lake Outwash	268
Gravel River	61	South Michipicoten River-Superior Shoreline	512
Hammell Lake	283	Spanish River	116
Hilliardton Marsh	82	Spring/Cut Lake Esker	91
Ivanhoe Lake	156	Sturgeon River	636
Jocko River	14	Swan Lake	100
Kama Cliffs	10	Tatachikapika River Plain	544
Kawartha Highlands	125	Trollope Lake Burnt Hill Poplar Spruce	65
Killarney Lake	52	Trout Lake	6
Killarney North	3,449	Turtle River – White Otter Lake	29
Kopka River	93	West Montreal River	1,914
Kukagami Lake	3,749	White Lake Conservation Reserve	68
Kwinkwaga Ground Moraine	79	White Lake Provincial Park	796
Lake Nipigon	1,712	Whitefish and East Whitefish Lakes Sandy Till Upland	973
Lake of the Woods Islands	178	Whitefish River Sandy Till	29
Lake Superior Archipelago	519	Wolf Lake Old Growth Forest	4,159
Lake Superior Highlands	7,794	Woodland Caribou	260
		Total	82,854

Source: Ontario Parks Datashare, MNR (1999a), MNR (2006b)

Image by D. Paleczny

The Degree of Protection for Forest Reserves and the Corresponding IUCN Protected Area Management Category: A Preliminary Assessment

Forest Reserves protect biodiversity through policy. While intentions are to protect them in perpetuity, there are mining lands attached to these areas. Therefore, Forest Reserves are assigned a 'partially protected' status and do not qualify for classification under IUCN guidelines. Where the mining tenure in a Forest Reserve lapses, the area becomes a recommended Provincial Park or Conservation Reserve, with the associated degree of protection. Whether or not the area would qualify as 'fully protected' and for inclusion in the IUCN protected area classification system would depend on its ecological state or condition.

Key Contact(s)

Natural Heritage, Lands and Protected Spaces Branch
Ministry of Natural Resources
300 Water Street
Peterborough, Ontario
K9J 8M5
Telephone: 705-755-2560
Fax: 705-755-1971

6.5 Enhanced Management Areas

Introduction

The Enhanced Management Area land use category was introduced in the *Ontario Living Legacy Land Use Strategy* (MNR, 1999a). While not a formal protected area, each Enhanced Management Area provides detailed land use direction in areas containing special features or values. A variety of resource and recreational uses can occur in Enhanced Management Areas. In some, specific uses may be subject to conditions designed to support the values that make the area special. Seven types of Enhanced Management Areas have been identified to date (MNR, 1999a): Natural Heritage, Recreation, Remote Access, Fish and Wildlife, Great Lakes Heritage Coast, Resource-based Tourism, and Intensive Forestry. In Ontario, 98 Enhanced Management Areas covering 1,505,400 ha have been identified (Table 6-9, Fig. 6-12,) (MNR, 2006c).

Table 6-9. Enhanced Management Areas in Ontario.

Enhanced Management Areas	Number	Area (ha)
Natural Heritage	26	43,933
Recreation	21	678,358
Remote Access	38	524,209
Fish and Wildlife	5	212,839
Great Lakes	8	46,061
Resource-Based Tourism	*0	0
Intensive Forestry	*0	0
Total	98	1,505,400

* Potential future designations.

Source: MNR (2006c).

Legislation and Policy Basis

Resource management in an Enhanced Management Area is completed in accordance with established policy and guidelines. For example, management of an area may be mandated by policies contained in the *Ontario Living Legacy Land Use Strategy* and relevant *District Land Use Guidelines*.

Protection Goal and/or Objectives, Selection Criteria, Management Objectives and/or Guidelines

Management is completed in a manner that ensures ecological sustainability, protection of significant natural heritage and biological features, and continued availability of resources for the long-term benefit of Ontarians. Management decisions account for the many interests and users of the resource, and resource management activities in all land-use areas are supposed to ensure they do not compromise values in adjacent areas. Enhanced Management Areas can lead to modifications (e.g., timing, location, method, and access) in resource management practices in order to recognize other land-use values. It is important to note, however, that these adjustments must be implemented with no impact on commercial wood supply. Enhanced Management Areas provide a specific focus for the application of guidelines and other planning and management strategies. Detailed implementation strategies for each area are developed through a public consultation process (MNR, 1999a).

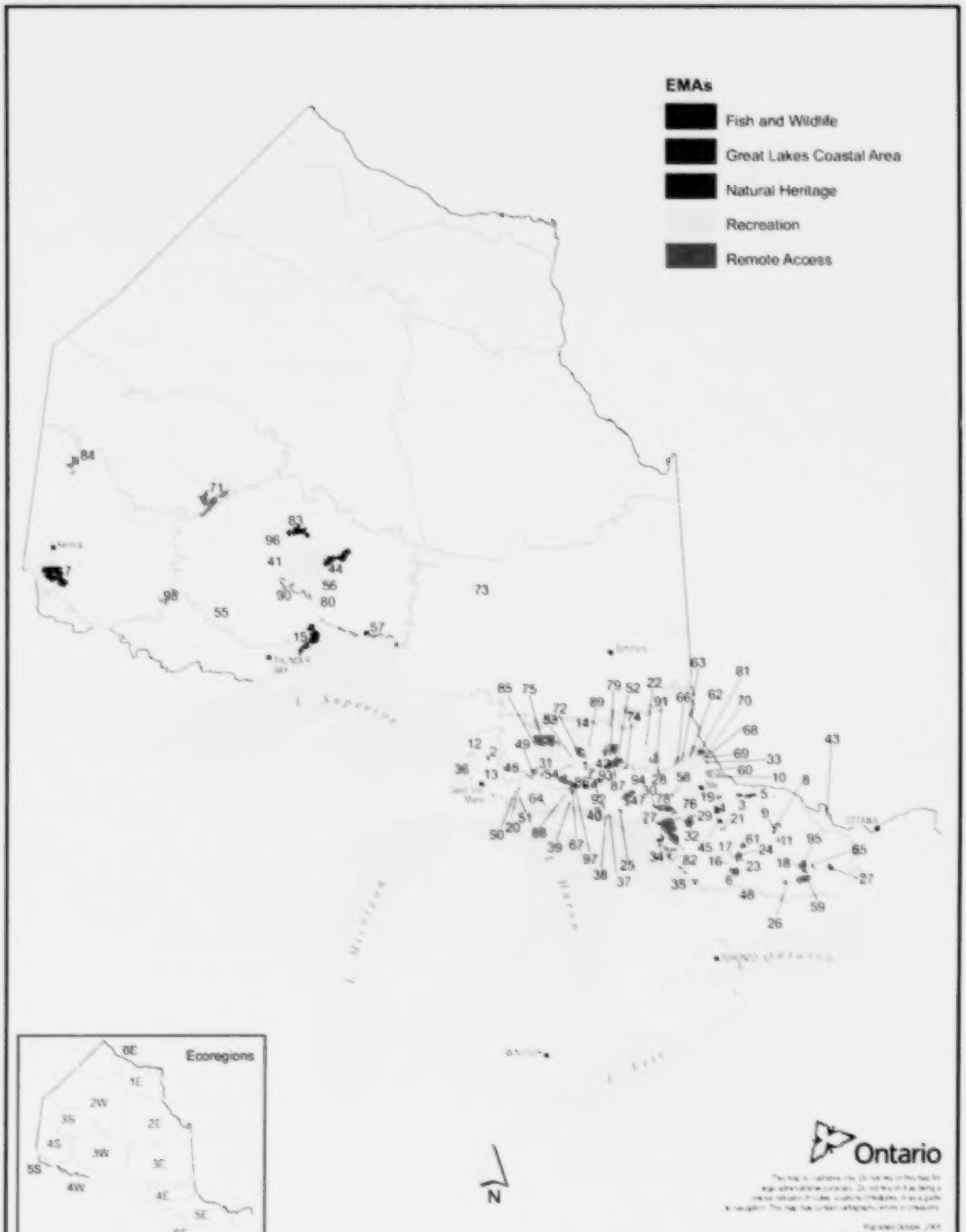
Although seven categories of Enhanced Management Area have been established, the Intensive Forestry Enhanced Management Area category is not a type of natural heritage area. Descriptions of the other categories follow below:

Natural Heritage Enhanced Management Areas
Natural Heritage Enhanced Management Areas are intended to protect areas with significant natural values while simultaneously allowing for a range of natural resource use activities. Forestry, mining, aggregate extraction, and hydro-electric development are permitted in these areas, subject to conditions designed to protect natural heritage values. Crown lands may be disposed of where disposition would not affect the natural values. Special management prescriptions to direct natural resource use activities are developed as part of ongoing land-use planning. The prescriptions identify conditions to protect natural values and apply to activities such as development of roads or trails.

Enhanced Management Areas in Ontario – Legend

1	ACHESON LAKE
2	ACHIGAN LAKE AREA
3	ALGONQUIN PROVINCIAL PARK HEADWATERS – NORTH BAY
4	ALGONQUIN PROVINCIAL PARK HEADWATERS – PARRY SOUND
5	ALGONQUIN PROVINCIAL PARK HEADWATERS – PEMBROKE
6	ANSON
7	AULNEAU PENINSULA
8	AYLEN LAKE EAST
9	AYLEN LAKE WEST & UPPER MADAWASKA RIVER
10	BALSAM CREEK ICE CONTACT DELTA
11	BARK LAKE
12	BATCHAWANA BAY CARP LAKE RAISED DELTA
13	BELLEVUE HANGING DELTA
14	BISCOTASI LAKE
15	BLACK BAY PENINSULA
16	BLACK RIVER
17	BLACK RIVER – FROST CENTRE
18	BON ECHO AREA
19	BOULTER FOREST
20	BRIDGLAND SPILLWAY
21	BUTT TOWNSHIP
22	CHINIGUCHI RIVER NORTH AREA
23	CLEAR LAKE
24	CLEAR LAKE – FROST CENTRE
25	COLLINS INLET HEADWATERS
26	COPEWAY LAKE
27	CROTCH LAKE
28	DONALD LAKE
29	EAST MILLS
30	EIGHTEEN MILE ISLAND
31	ENDIKAI LAKE PERCHED DELTA
32	FERRIE LOUNT TOWNSHIP AREA
33	GARROW TOWNSHIP ICE CONTACT DELTA
34	GREAT LAKES COASTAL AREAS – PARRY SOUND NORTH
35	GREAT LAKES COASTAL AREAS – PARRY SOUND SOUTH
36	GREAT LAKES COASTAL AREAS – SAULT STE. MARIE
37	GREAT LAKES COASTAL AREAS – SUDBURY (A)
38	GREAT LAKES COASTAL AREAS – SUDBURY (B)
39	GREAT LAKES COASTAL AREAS – SUDBURY (C)
40	GREAT LAKES COASTAL AREAS – SUDBURY (D)
41	GULL BAY
42	HESS LAKE / MICHAUD LAKE
43	HUBERT PROPERTY
44	HUMBOLDT – ONAMAN CORRIDOR
45	JOLY PAXTON
46	KAWARTHA BARRENS
47	KILLARNEY EAST AREA
48	KIRKPATRICK (BLUE) LAKE AREA
49	KIRKPATRICK LAKE
50	KIRKWOOD DELTA APEX
51	KIRKWOOD DELTA MARGIN
52	KITCHENER TOWNSHIP
53	LAC AUX SABLES
54	LAC AUX SABLES ICE MARGIN
55	LAC DES MILLE LACS
56	LAKE NIPIGON – BEARDMORE
57	LAKE SUPERIOR SHORELINE
58	LATCHFORD
59	LINGHAM LAKE
60	LITTLE JOCKO ICE CONTACT DELTA
61	LIVINGSTONE TOWNSHIP
62	MARTEN RIVER
63	MARTEN RIVER KAMES
64	MATINENDA LAKE AREA
65	MAZINAW LAKE
66	MCCALLUM PENINSULA/THISTLE TOWNSHIP
67	MCCARTHY LAKE
68	MCCONNELL INTERLOBATE MORAINE
69	MCCONNELL LAKES INTERVENING AREA
70	MCCONNELL LAKES RECREATION AREA
71	MINISS
72	MOZHABONG LAKE ACCESS AREA
73	NAGAGAMISIS LAKE
74	NELSON DELTA
75	NORTH HINKLER ROAD AREA
76	NORTH PARRY SOUND AREA – NORTH BAY
77	NORTH PARRY SOUND AREA – PARRY SOUND
78	NORTH PICKEREL RIVER AREA
79	ONAPING/FRIDAY/SCOTIA LAKES
80	ORIENT BAY PENINSULA
81	OTTERTAIL CREEK
82	PARRY SOUND INTERIOR
83	PIKITIGUSHI
84	PIPESTONE BAY – MCINTOSH
85	ROCKY ISLAND LAKE/MISSISSAGI RIVER AREA
86	SAVAGE LAKE AREA
87	SEAL LAKE MORAINE AND DELTA COMPLEX
88	SERPENT RIVER
89	SINAMINDA AND KENNEDY LAKE AREA
90	SOUTH LAKE NIPIGON
91	STURGEON RIVER SAND DUNES
92	SWANN LAKE
93	TITMOUSE LAKE ICE MARGIN
94	VERMILION RIVER
95	WESLEMEKOON LAKE
96	WEST LAKE NIPIGON
97	WHISKEY QUIRKE LAKES
98	WHITE OTTER

Figure 6-12. Enhanced Management Areas in Ontario in relation to Ecoregion boundaries.



Recreation Enhanced Management Areas

Recreation Enhanced Management Areas encompass areas with high recreational use or significant recreational values for activities such as angling, hunting, trail use, and canoeing. This designation can be used for a variety of conditions, ranging from areas where substantial development of recreation services is permitted, to areas providing low-density, high quality recreation in a natural setting.

Some of the Recreation Enhanced Management Areas have been identified to protect remote recreation values. In these cases, areas will be managed to provide high quality recreation, resource-based tourism, and natural values within a remote or semi-remote forested setting, while also permitting some business and industrial activities. In these recreation areas, industrial activities such as forestry, mining, aggregate extraction, and the construction and maintenance of new roads, will be carried out in such a way as to maintain or enhance the remote recreation qualities. Other resource interests will be accommodated in Recreation Enhanced Management Areas as well. For example, these areas also will be used in future planning to identify areas in which enhanced management and use of accessible fish and wildlife resources is a major objective of planning and resource management.

Remote Access Enhanced Management Areas

Remote Access Enhanced Management Areas are intended to maintain the remote character of selected areas. Typically, these are relatively large areas that provide people with high-quality remote recreational experiences including hunting, fishing, canoeing, and camping. Given the large size, remoteness, and relative absence of roads, these areas play a significant role in protecting wilderness values outside the formal parks and protected areas system.

The remote character of these areas will be retained through planning and the creation of standards for the location and use or abandonment of roads and trails. Roads for industrial and commercial use are permitted, but are smaller in size and have less ecological impact (i.e., engineered to a lower standard of road) than primary access roads. New road proposals will be evaluated through comprehensive long-term access planning that considers the values of the area. Some guidelines include:

- Roads should be constructed to the lowest standard possible.
- New roads or trails should be directed to existing corridors where possible.
- Layout should consider aesthetics.
- Design and construction should facilitate access controls, closure, and rehabilitation.

While existing authorized access will continue, new roads will be restricted from public use.

Fish and Wildlife Enhanced Management Areas

The Fish and Wildlife Enhanced Management Areas are managed for the maintenance and enhancement of fish and wildlife habitat and populations, while allowing for the use of other natural resources (multiple use management). Selection criteria include areas:

- Of known or potential fish and wildlife habitat for species that require special management practices.
- Where forestry practices can be applied to enhance or maintain special habitat requirements.
- Where enhanced hunting and fishing opportunities may be provided through specific management and land use practices.

Several large Fish and Wildlife Enhanced Management Areas were delineated in the *Ontario Living Legacy Land Use Strategy*. Additional areas may be identified in the future.

Great Lakes Coastal Enhanced Management Areas

Great Lakes Coastal Enhanced Management Areas are lands and waters along the Georgian Bay, the North Channel, and the Lake Superior coast. This category fits within a larger 'Featured Area' concept – the 'Great Lakes Heritage Coast' – that applies to all Crown lands along the portion of the Great Lakes shoreline within the Ontario Living Legacy Planning Area (Government of Ontario, 2000; MNR, 1999a). The Great Lakes Coastal Enhanced Management Area has been applied in conjunction with the other designations and Enhanced Management Areas encompassed by the Heritage Coast.

In coastal areas, ecosystem protection and promotion of recreation and tourism are the primary land use and resource management goals. Traditional Crown land activities that have occurred along the Great Lakes shoreline are encouraged, including commercial and sport fishing, hunting, fur harvesting, boating, camping, tourism, and trail use. The following policies on commercial resource use and access apply to the coastal areas:

- Commercial timber harvesting will generally not occur in this area.
- Mineral exploration and development may occur on a controlled basis.
- Aggregate extraction may be undertaken where it will have no significant impact on the ecological, aesthetic, or tourism values of the coastal area.
- Aquaculture may be permitted provided the objectives of maintaining the ecological, recreational, and aesthetic ecological values of the coastal area are maintained, and where federal and provincial regulations ensure protection of water quality and fish populations.
- Hydro-electric development will be planned to be consistent with the value of the area. Underwater and underground utilities are encouraged where environmentally appropriate.
- To maintain the character of the coast, the potential impacts of any proposed new access must be carefully considered. Substantial new road access is discouraged. Where roads are constructed to access existing development or industrial activity, they must maintain the scenic, ecological, and land-use values, and they must retain remote characteristics where they exist today.

This guideline outlines general direction and does not provide an exhaustive list of all possible uses. Other uses (e.g., sunken log removal) can occur where they are consistent with the overall intent for the area and provincial policy.

Disposition of the remaining Crown lands within the Great Lakes Coastal Areas is discouraged. Land disposition can only occur where it is consistent with both the policies and the strategy and the overall intent of the Heritage Coast.

Resource-Based Tourism Enhanced Management Areas

The Resource-based Tourism Enhanced Management Areas will be used in future planning programs to recognize areas with significant resource-based tourism values. The identification of these areas will reflect the results of collaborative work by government agencies, industry, and NGOs to develop resource stewardship agreements for these areas. Proposals for new Resource-based Tourism Enhanced Management Areas that potentially will affect areas already assigned to a specific designation or Enhanced Management Area will require careful evaluation to determine the most appropriate land-use category (MNR, 1999a).

The Degree of Protection for Enhanced Management Areas and the Corresponding IUCN Protected Area Management Category: A Preliminary Assessment

Enhanced Management Areas are not designated in perpetuity for the primary purpose of protecting biodiversity, are not designated by regulation, and permit large-scale industrial development in many cases. Accordingly, these areas are classed as 'partially protected' and do not qualify as protected areas in the IUCN classification system.

Key Contact(s)

Natural Heritage, Lands and Protected Spaces Branch
Ministry of Natural Resources
300 Water Street, 5th Floor
Peterborough, Ontario
K9J 8M5
Telephone: 705-755-2560
Fax: 705-755-1971

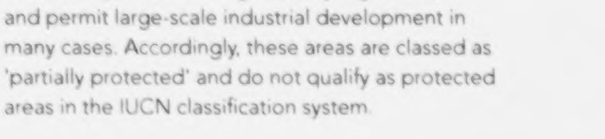


Image by P.A. Gray

6.6 Significant Wetlands

Introduction

Wetlands are among the most productive and biologically diverse ecosystems on Earth, and often form the interface between aquatic and terrestrial ecosystems. Cultural, social, economic, and ecological benefits of wetlands include:

- Water filtration systems that remove contaminants, suspended particles, and excessive nutrients.
- Provision of habitat. Wetlands provide nesting, feeding, and staging habitat for several species of waterfowl and other wildlife such as reptiles and amphibians.
- A high quality spawning and nursery area for many species of fish and other aquatic organisms.
- Natural shoreline protection from erosion.
- A reservoir to help control and reduce flooding through water storage and retention.
- A source of oxygen and water vapour, which play crucial roles in the maintenance of air quality and climatic cycles, respectively.
- Recreational opportunities including hiking, bird watching, and fishing (Environment Canada, 2005c).

In order to address significant wetland losses in southern Ontario, and to enhance the 'wise-use' of northern wetlands, NGOs, academic institutions, agencies, and individuals have devoted substantial resources to the protection of wetlands in Ontario during the last 30 years. One important initiative involved development of a provincial wetlands policy. The wetland policy in Ontario was initiated in the 1970s and formalized in the 1980s with completion of *Towards A Wetland Policy for Ontario* (MNR, 1981) and *Manual of Implementation Guidelines for the Wetlands Policy Statement* (MNR and MMA, 1992a). In 1992, the MNR and MMA issued *Wetlands: A Statement of Ontario Government Policy under Authority of the Planning Act* (MNR and MMA, 1992b). In 1995, the Wetlands Policy Statement was incorporated, essentially unchanged, into the *Comprehensive Set of Policy Statements* (MMA, 1995). In 1996, the *Comprehensive Set of Policy Statements* was replaced by the *Provincial Policy Statement* (PPS), which included the province's wetland policy. In 2005, an updated version of the PPS was released. It provides "*policy direction on matters of provincial interest related to land use planning and development.*" The natural heritage policies of the PPS, which include the wetland policies, state that:

- Natural features and areas shall be protected for the long term.
- The diversity and connectivity of natural features in an area, and the long-term ecological function and biodiversity of natural heritage systems, should be maintained, restored or, where possible, improved, recognizing the linkages between and among natural heritage

Image by T.J. Beechey

features and areas, surface water features, and groundwater features (MMAH, 2005a).

Notable changes made to the 2005 version of the *Provincial Policy Statement* include:

- Expansion of the wetland policy prohibiting development and site alteration in significant wetlands beyond Ecoregions 7E and 6E to include Ecoregion 5E, and to include all significant Great Lakes coastal wetlands.
- Change in the direction given to planning authorities regarding application of policy statements under the *Planning Act* from "*shall have regard to*" to "*shall be consistent with*" (B. Potter, personal communication).

In addition, the new *Provincial Policy Statement* water policies, which have a wetlands component, have been expanded and now provide for:

- Using the "watershed" as the ecologically meaningful scale for planning.
- Minimizing potential negative impacts, including cross-jurisdictional and cross-watershed impacts.
- Identifying surface water features, groundwater features, hydrologic functions, natural heritage features, and areas that are necessary for the ecological and hydrological integrity of watersheds.
- Maintaining linkages and related functions among surface water features, groundwater features, hydrologic functions, and natural heritage features and areas (B. Potter, personal communication).

Of about 2,300 wetlands evaluated in Ontario, 1,344 (encompassing 486,598 ha) have been designated as Provincially Significant Wetlands (Table 6-10, Figs. 6-13 to 6-22) (Land Information Ontario, 2008).

Legislation and Policy Basis

The *Provincial Policy Statement* is issued under Section 3 of the *Planning Act*, which requires that decisions affecting planning matters "*shall be consistent with*" policy statements issued under the *Planning Act* (Statutes of Ontario, 1990a). Many other statutes influence wetland management as well, including the *Conservation Lands Act*, the *Provincial Parks and Conservation Reserves Act*, the *Drainage Act*, the *Lakes and Rivers Improvement Act*, the *Public Lands Act*, the *Ontario Water Resources Act*, the *Environmental Protection Act*, the *Conservation Authorities Act*, the *Canada Wildlife Act*, the *National Parks Act*, and the *Fisheries Act* (Canada).

Protection Goal and/or Objectives

Under the natural heritage policies of the *Provincial Policy Statement*, Provincially Significant Wetlands are protected from 'development' and 'site alteration' as defined in the *Provincial Policy Statement* (MMAH, 2005a). Planning authorities may go beyond the minimum standards established in provincial policies in developing official plan policies and when making decisions on planning matters, unless doing so would conflict with any other policy. For example, in addition to wetlands that have been designated provincially significant by MNR, a planning authority can choose to include regionally and locally significant wetlands in their planning policies as well.

Selection Criteria

The Government of Ontario defines wetlands as lands that are seasonally or permanently covered by shallow water, as well as lands where the water table is close to or at the surface. In either case, the presence of abundant water has caused the formation of hydric soils and has favoured hydrophytic plants or water tolerant plants. The four major wetland types are swamps, marshes, bogs, and fens (MNR, 2002b, c).

Under the auspices of the *Provincial Policy Statement*, Provincially Significant Wetlands are identified by the Ministry of Natural Resources on the basis of criteria or guidelines established by the province, as amended from time to time. At present, the Ontario Wetland Evaluation System is used in conjunction with provincial scoring criteria to identify Provincially Significant Wetlands. Evaluation criteria include:

A. Biological Component:

- Productivity
- Biodiversity
- Size

B. Social Component:

- Economically Valuable Products
- Recreational Activities
- Landscape Aesthetics
- Education and Public Awareness
- Proximity to Areas of Human Settlement

Table 6-10. The number and area of Provincially Significant Wetlands (PSWs) according to Ecoregion and Ecodistrict in Ontario. Note that the densities of PSWs identified in northern ecosystems reflect sampling effort and are not necessarily representative of all PSWs that may exist in these areas.

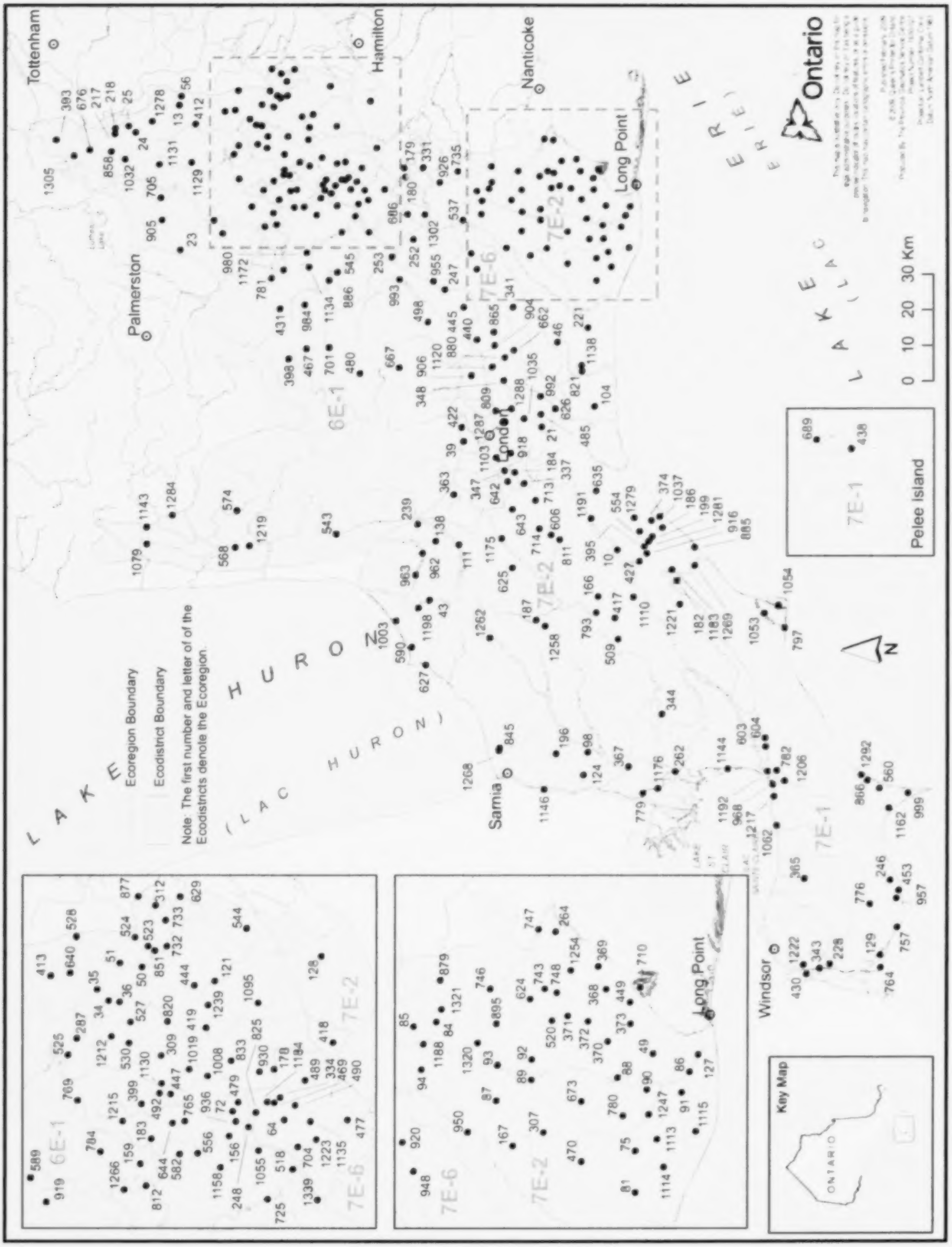
Ecoregion and Ecodistrict	Number	Area (Ha)
7E-1	36	6,868
7E-2	115	16,553
7E-3	18	1,190
7E-4	16	426
7E-5	121	13,260
7E-6	37	4,438
6E-1	103	47,717
6E-2	11	2,288
6E-4	14	9,097
6E-5	80	48,971
6E-6	80	37,982
6E-7	64	9,612
6E-8	115	51,324
6E-9	83	26,537
6E-10	29	7,218
6E-11	62	47,485
6E-12	51	36,047
6E-13	37	3,207
6E-14	12	3,262
6E-15	69	18,581
6E-16	19	6,970
6E-17	6	3,582
5E-1	9	2,551
5E-3	1	349
5E-4	2	2,459
5E-5	8	6,179
5E-6	2	333
5E-7	18	3,202
5E-8	15	6,223
5E-9	1	1,995
5E-10	7	3,845
5E-11	71	19,156
4E-4	1	12
3E-5	2	394
3E-6	8	5,124
3W-1	1	702
3W-3	4	2,146
3W-4	1	464
4W-1	4	1,260
4W-2	6	1,623
4S-2	1	60
4S-6	1	1,984
5S-2	3	23,923
Total	1,344	486,598

Source: Land Information Ontario, 2008.

Image by P.A. Gray

Fig. 6-13. Provincially Signifciant Wetlands in Ecodistricts 7E-1, 7E-2, 7E-6, and 6E-1.

Note: Although the key characteristics of a wetland generally are quite stable, outer boundaries can change and boundary verification or re-evaluation may be necessary from time to time. Wetland evaluations are viewed as open files to which new information can be added as it becomes available. Some PSWs are currently being re-evaluated and/or have not yet been entered into the MNR's Natural Resources Values Information System (NRVIS) database. Please contact the appropriate MNR District Office if you have any questions about the location or status of PSWs.



Provincially Significant Wetlands in Ecodistricts 7E-1, 7E-2, 7E-6, and 6E-1 – Legend

10	A2 TAIT'S BUSH
13	ACTON - SILVER CREEK WETLAND COMPLEX
21	ALLEN WHITE WETLAND
23	ALMA WETLAND COMPLEX
24	ALTON - HILLSBURGH WETLAND COMPLEX
25	ALTON HILLSBURGH WETLAND COMPLEX
34	ARKELL - CORWHIN WETLAND COMPLEX
35	ARKELL - CORWHIN WETLAND COMPLEX
36	ARKELL BOG COMPLEX
39	ARVA MORAINE WETLAND COMPLEX (UT15)
43	AUSABLE RIVER WETLAND
46	AYLMER WILDLIFE MANAGEMENT AREA (CC11)
49	BACKUS WOODS WETLANDS COMPLEX (DYC3)
50	BADENOCH - MOFFAT WETLAND COMPLEX
51	BADENOCH - MOFFAT WETLAND COMPLEX
56	BALLINAFAD RIDGE WETLAND COMPLEX
64	BANNISTER - WRIGLEY - SUDDEN TRACT COMPLEX
72	BARRIE'S LAKE - BAUMAN CREEK WETLAND COMPLEX
75	BARTH SIDEROAD SWAMP - SOC7
81	BAYHAM TOWNLINE
84	BC13 (2)
85	BC15 (2)
86	BC16 (3)
87	BC22
88	BC23 (2)
89	BC24 (3)
90	BC28 (1)
91	BC29 (2)
92	BC30 (3)
93	BC31 COMPLEX (BC31)
94	BC9 (6)
98	BEAR CREEK WOODLOT NO. 4
108	BEAVER CREEKWETLAND (KC 24)
111	BEECHWOOD WETLAND COMPLEX AB10)
121	BEVERLY SWAMP COMPLEX
124	BICKFORD OAK WOODS WETLAND COMPLEX (SC50)
127	BIG CREEK AT PORT ROYAL (BC14)
128	BIG CREEK HEADWATERS COMPLEX
129	BIG CREEK MARSH
138	BIG SWAMP (AB2)
156	BLAIR CREEK WETLAND
159	BLOOMINGDALE - ROSENDALE SWAMP
166	BOBCAT SWAMP WETLAND COMPLEX (SC2)
167	BOC2 WETLAND COMPLEX (BOC2)
178	BRANCHTON SWAMP
179	BRANTFORD NORTH WEST (DAVIDSVILLE SWAMP)
180	BRANTFORD PERCHED FENS
182	BREAULT WETLAND
183	BRESLAU COMPLEX
184	BRIGHAM ROAD WETLAND
186	BROCK CREEK WETLAND (LT28)
187	BROWN CREEK WOODS
196	BURTON DRAIN WOODLOT
199	BUTTINGER SWAMP (LT12)
217	CALEDON LAKE (EG3)
218	CALEDON LAKE WETLAND COMPLEX
221	CALTON SWAMP (CC2)
228	CANARD RIVER WETLAND (ER2)
239	CASSIDY SWAMP (AB12)
246	CEDAR CREEK
247	CEDAR CREEK SWAMP (UT36)
248	CEDAR CREEK TRIBUTARY WETLAND COMPLEX
252	CENTRAL WHITEMANS CREEK COMPLEX
253	CENTRAL WHITEMAN'S/HORNER CREEK COMPLEX (GR4)
262	CHENAL ECARTE MARSH (SC18)
264	CHESTNUT WETLAND LR10
287	CLYTHE CREEK WETLAND
307	COURTLAND SWAMP COMPLEX BOC1
309	CRANBERRY - OIL WELL BOG COMPLEX
312	CRAWFORD LAKE AND CALCIUM PITS WETLAND COMPLEX
331	D'AUBIGNY CREEK SWAMP
334	DEANS LAKE - COWAN LAKE COMPLEX
337	DELAWARE WOODLOT (LT21)
341	DEREHAM WETLAND COMPLEX (BOC11)
343	DETROIT RIVER MARSHES
344	DEYO'S WOODLOT
347	DINGMAN CREEK FEN WETLAND COMPLEX (PATCH 10013) (UT2)
348	DINGMAN CREEK/NORTH DORCHESTER WETLAND COMPLEX
363	DUNCRIEF WETLAND
365	DUNN'S WOODLOT
367	DUTHILL WOODLOT NO. 2
368	DYC 8
369	DYC2 (2)
370	DYC4 (1)
371	DYC6 (1)
372	DYC7 (3)
373	DYC 9
374	EAGLE WOODLOT
393	ELBA - CAMILLA WETLAND COMPLEX (AM6)
395	ELGIN NATURE RESERVE (LT8)
398	ELLICE SWAMP
399	ELLIS CREEK COMPLEX
412	ERAMOSA RIVER - BLUE SPRINGS CREEK WETLAND
413	ERAMOSA RIVER - BLUE SPRINGS CREEK WETLAND COMPLEX
417	EUPHEMIA NO. 3 (CAIRO WETLAND)
418	FAIRCHILD CREEK COMPLEX
419	FAIRCHILD CREEK HEADWATERS COMPLEX
422	FANSHAWE WETLANDS
427	FERNDELL COMPLEX (LT 7)
430	FIGHTING ISLAND
431	FIRELLA CREEK SWAMP
438	FISH POINT
440	FIVE POINTS WOODS (UT13)
444	FLETCHER CREEK SWAMP
445	FOLDENS SWAMP
447	FORBES CREEK WETLAND
449	FORESTVILLE CREEK COMPLEX (FC1)
453	FOX CREEK (ER14)
467	GADS HILL SOUTH
469	GALT RIDGE - SUDDEN BOG
470	GARNHAM WETLAND (VC1)
477	GILBERT CREEK WETLAND
479	GILHOLM - SALISBURY WETLAND
480	GILLARD DRAIN COMPLEX
485	GLANWORTH WETLAND COMPLEX
489	GLEN MORRIS RIDGE WETLAND COMPLEX
490	GLEN MORRIS VALLEY WETLAND COMPLEX
492	GLENCHRISTIE WETLAND COMPLEX
498	GOLSPIE SWAMP
509	GRAPE FERN WOODS
518	GREENFIELD SWAMP
520	GREEN'S CORNER WETLAND (DYC10)
523	GUELPH JUNCTION WETLAND COMPLEX
524	GUELPH JUNCTION WETLAND COMPLEX
525	GUELPH NORTH EAST COMPLEX
527	HALLS POND COMPLEX
528	HALTON ESCARPMENT WETLAND
530	HANLON CREEK SWAMP
537	HATCHLEY SWAMP
543	HAY SWAMP
544	HAYESLAND - CHRISTIE WETLAND COMPLEX
545	HAYSVILLE WETLAND COMPLEX
554	HERON WOODS COMPLEX (LT23)
556	HIDDEN VALLEY WETLAND
560	HILLMAN MARSH
568	HOLMESVILLE CREEK COMPLEX
574	HULLETT MARSH COMPLEX
582	IDLEWOOD SWAMP
589	INVERHAUGH VALLEY
590	IPPERWASH INNER DUNAL WETLAND COMPLEX (SC48)
603	JEANETTE'S CREEK MARSH
604	JEANETTE'S CREEK WOODLOT
606	JIM THOMPSON ET AL. WETLAND (SC4
624	KENT CREEK COMPLEX WETLAND (LR 1)
625	KERWOOD SWAMP ME3
626	KETTLE CREEK WOODS
627	KETTLE POINT WETLAND

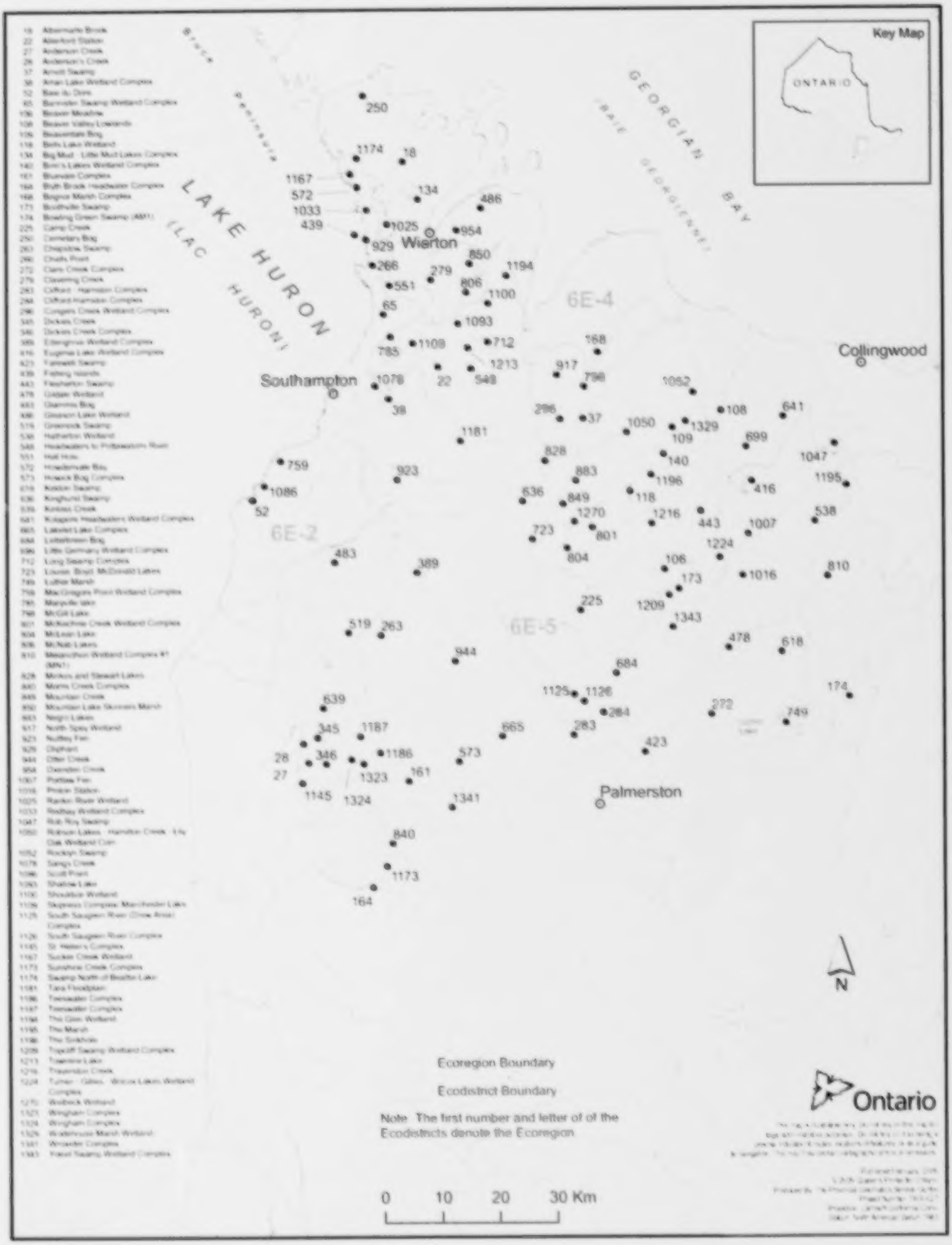
Continued on page 197

Provincially Significant Wetlands in Ecodistricts 7E-1, 7E-2, 7E-6, and 6E-1 – Legend

629 KILBRIDE SWAMP WETLAND COMPLEX
635 KING/SMITH SWAMP
640 KNATCHBULL WETLAND
642 KOMOKA PARK WETLAND COMPLEX UT1
643 KOMOKA/SOUTH STRATHROY CREEK WETLAND (SC9)
644 KOSSUTH WETLAND COMPLEX
662 LAKE WHITTAKER WETLANDS (KC23)
667 LAKESIDE WILDWOOD COMPLEX (UT 48)
673 LANGTON WETLAND (BC32)
676 LAUREL COMPLEX (AM5)
686 LEVY LAKE – MUD CREEK WETLAND
689 LIGHTHOUSE POINT NATURE RESERVE
701 LITTLE LAKES SWAMP COMPLEX
704 LITTLE TURNBULL LAKE WETLAND
705 LIVING SPRINGS WETLAND COMPLEX
710 LONG POINT WETLAND COMPLEX (LP1)
713 LONGWOODS (UT20)
714 LONGWOODS WOODLOT WETLAND COMPLEX (SC6)
725 LOWER ALDER CREEK SWAMP
732 LOWER MOUNTSBERG CREEK SWAMP COMPLEX
733 LOWER MOUNTSBERG CREEK WETLAND COMPLEX
735 LOWER OAKLAND SWAMP
743 LR10 (3)
746 LR13
747 LR16 COMPLEX (LR16)
748 LR8 (3)
757 LYPP'S BEACH
764 MANN'S MARSH (ER5)
765 MAPLE GROVE ROAD WETLAND COMPLEX
769 MARDEN SOUTH COMPLEX
776 MARSHFIELD WOODS
779 MARSHY CREEK (SC35)
780 MARSTON WETLAND (BC33)
781 MARTIN CREEK HEADWATERS WETLAND COMPLEX
782 MARTINDALE MARSH (LT43)
784 MARYHILL SWAMP
793 MCCREADY WOODS (SC22)
797 MCGEACHY POND
809 MEADOWLILY WOODS (UT21)
811 MELBOURNE MARSH (SC3)
812 MELITZER CREEK WETLAND COMPLEX
820 MILL CREEK WETLAND
821 MILL POND WETLAND (CC8)
825 MILROY LAKE WETLAND
833 MOFFAT CREEK SWAMP
845 MOSSY MARSH (SC36)
851 MOUNTSBERG RESERVOIR MARSH
858 MUD LAKE (EG1)
865 MUD LAKES (UT12)
866 MUDDY CREEK
877 NASSAGAWEYA CANYON WETLAND COMPLEX
879 NC2 (3)
880 ND17E (UT10)
885 NEW GLASGOW WOODLOT
886 NEW HAMBURG OXBOW WETLAND COMPLEX
895 NIXON ELLATON WETLANDS (WIND1)
904 NORTH CRAMPTON SWAMP (UT58)
905 NORTH CUMNOCK COMPLEX
906 NORTH DORCHESTER SWAMP
916 NORTH RODNEY WOODLOT (LT9)
918 NORTH TALBOT WETLANDS
919 NORTH WOOLWICH SWAMP
920 NORWICH RESERVOIR
926 OAKLAND SWAMP
930 OLIVER'S BOG
936 ORR'S LAKE – BECHTEL CREEK WETLAND
948 OTTER CREEK WETLAND COMPLEX (BOC4)
950 OTTERVILLE COMPLEX BOC7
955 OXFORD CENTRE SWAMP – TRT3 (UT 38)
957 OXLEY POISON SUMAC SWAMP
962 PARKHILL
963 PARKHILL CREEK WETLAND COMPLEX (AB3)
968 PATERNASTER CLUB (ER20)
980 PETERSBURG SWAMP
984 PHILLIPSBURG SWAMP
992 PITCHER PLANT FEN (KC 15)
993 PITTOCK RESERVOIR
999 POINT PELEE MARSH (ER8)
1003 PORT FRANKS WETLAND (AB12)
1008 PORTUGESE SWAMP
1019 PUSLINCH LAKE – IRISH CREEK COMPLEX
1032 READING SWAMP
1035 REGINA MUNDI KIRK COUSINS WETLAND (UT6)
1037 REIVE BOG (LT14)
1053 RONDEAU N.W. SHORE
1054 RONDEAU PARK
1055 ROSEVILLE SWAMP – CEDAR CREEK WETLAND
1062 RUSCOM SHORE MARSH (ER9)
1079 SARATOGA COMPLEX
1095 SHEFFIELD – ROCKTON COMPLEX
1103 SIFTON BOG (UT3)
1110 SKUNK'S MISERY (LT22)
1113 SOC2 COMPLEX (SOC2)
1114 SOC4 (3)
1115 SOC5
1120 SOUTH DORCHESTER SWAMP (UT23)
1129 SPEED – LUTTERAL – SWAN CREEK WETLAND COMPLEX
1130 SPEED RIVER WETLAND COMPLEX
1131 SPEED LUTTERAL SWAN CREEK WETLAND COMPLEX (EG4)
1134 SPONGY LAKE
1135 SPOTTISWOOD – PINEHURST LAKE COMPLEX
1138 SPRINGWATER CONSERVATION AREA (CC 7)
1143 ST. AUGUSTINE'S COMPLEX
1144 ST. CLAIR MARSH COMPLEX
1146 STAG ISLAND
1158 STRASBURG CREEK WETLAND COMPLEX
1162 STURGEON CREEK MARSH (ER10)
1172 SUNFISH LAKE – LAUREL CREEK COMPLEX
1175 SYDENHAM RIVER WETLANDS COMPLEX
1176 SYNE RIVER MARSHES (SC17)
1183 TAYLOR POND COMPLEX (LT15)
1184 TAYLOR'S LAKE WETLAND
1188 TEETERVILLE RESERVOIR WETLAND (BC11)
1191 THAMES RIVER FLOODPLAIN (LT31)
1192 THAMES RIVER MOUTH COMPLEX (LT33)
1198 THEDFORD SWAMP
1206 TILBURY NORTH COMPLEX (LT32)
1212 TORRENCE CREEK SWAMP
1215 TOWNLINE WETLAND
1217 TREMBLAY BEACH MARSH (ER11)
1219 TRICKS CREEK SWAMP
1221 TURIN PAW PAW
1222 TURKEY CREEK (ER12)
1223 TURNBULL LAKE – CHARLIE CREEK WETLAND
1239 VALENS RESERVOIR AND SWAMP
1247 VC4 SOUTH WALSINGHAM SWAMP
1254 VITTORIA WETLAND COMPLEX (DYC1)
1258 WALNUT HERONRY WOODS
1262 WARWICK CONSERVATION AREA
1266 WATERLOO RURAL EAST WETLAND
1268 WAWANOSH WETLANDS CONSERVATION AREA (SC46)
1269 WAYNE SMITH'S WOODLOT
1278 WEST CREDIT RIVER
1279 WEST DUTTON WOODLOT (LT4)
1281 WEST LORNE WOODLOT
1284 WESTFIELD COMPLEX
1287 WESTMINSTER PONDS/POND MILLS WETLAND
1288 WESTMINSTER WETLAND COMPLEX (UT54)
1292 WHEATLEY TWO CREEKS
1302 WHITEMANS CREEK – KENNY CREEK WETLAND COMPLEX
1305 WHITTINGTON WETLAND COMPLEX (AM7)
1320 WIND2 DRY CREEK WETLAND COMPLEX (WIND2)
1321 WINDHAM CENTRE SANDY SWAMPLAND (NC1)
1339 WOLVERTON WETLAND COMPLEX

Fig. 6-14. Provincially Significant Wetlands in Ecodistricts 6E-2, 6E-4, and 6E-5.

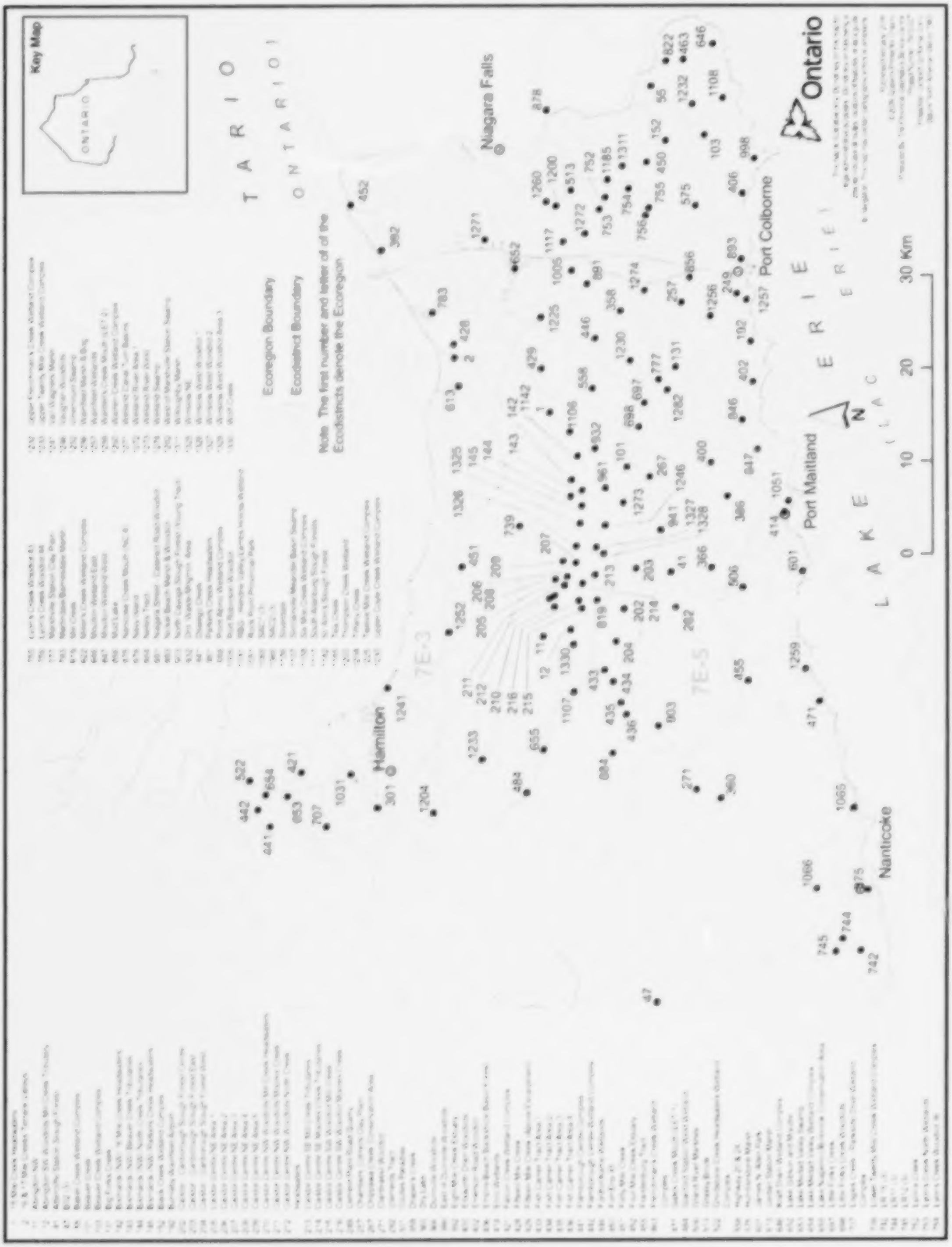
Note: Although the key characteristics of a wetland generally are quite stable, outer boundaries can change and boundary verification or re-evaluation may be necessary from time to time. Wetland evaluations are viewed as open files to which new information can be added as it becomes available. Some PSWs are currently being re-evaluated and/or have not yet been entered into the MNR's Natural Resources Values Information System (NRVIS) database. Please contact the appropriate MNR District Office if you have any questions about the location or status of PSWs.



Note: The first number and letter of of the Ecodistricts denote the Ecoregion

Fig. 6-15. Provincially Significant Wetlands in Ecodistricts 7E-3 and 7E-5.

Note: Although the key characteristics of a wetland generally are quite static, outer boundaries can change and boundary verification or re-evaluation may be necessary from time to time. Wetland evaluations are viewed as open files to which new information can be added as it becomes available. Some PSWs are currently being re-evaluated and/or have not yet been entered into the MNR's Natural Resources Values Information System (NRVIS) database. Please contact the appropriate MNR District Office if you have any questions about the location or status of PSWs.



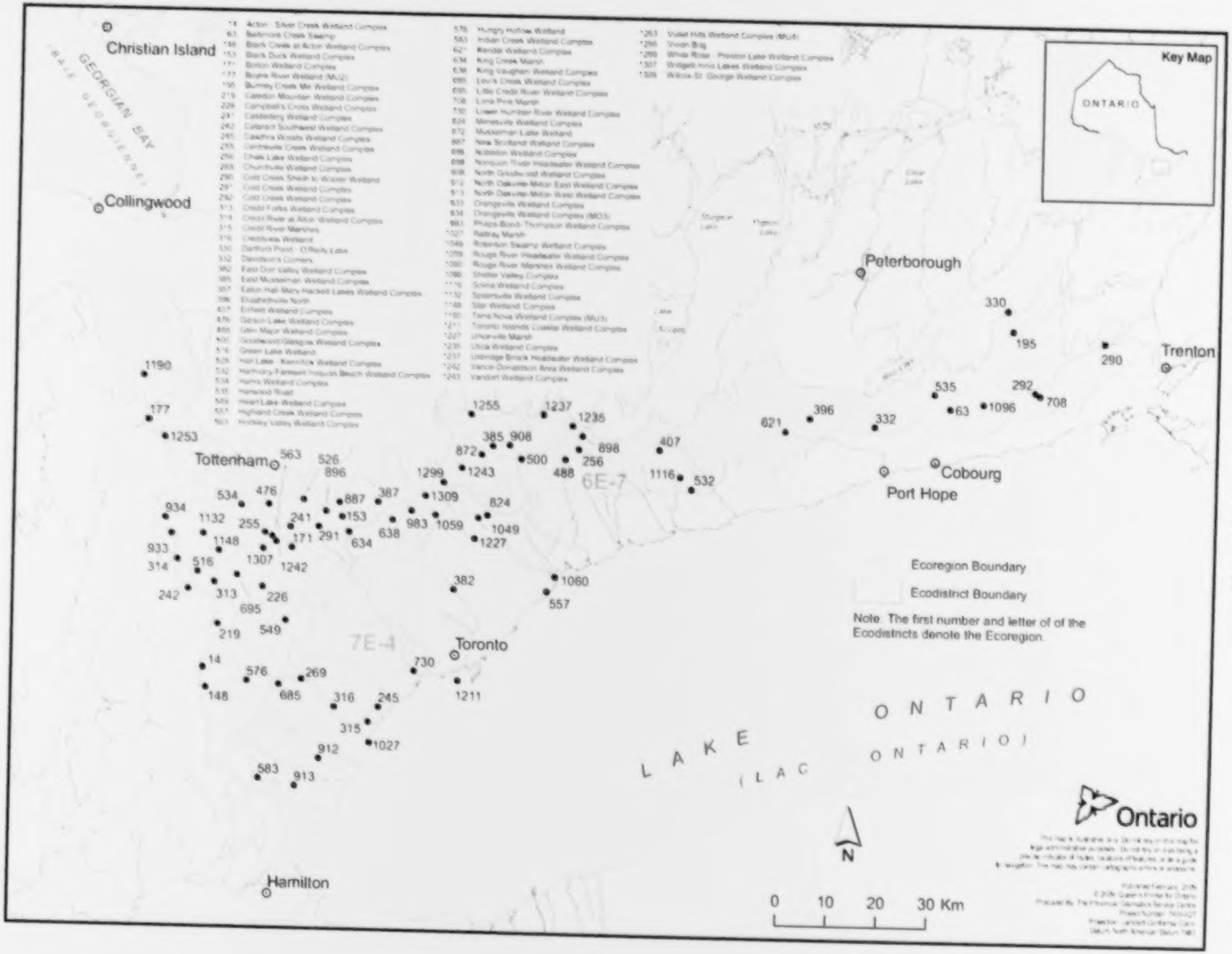
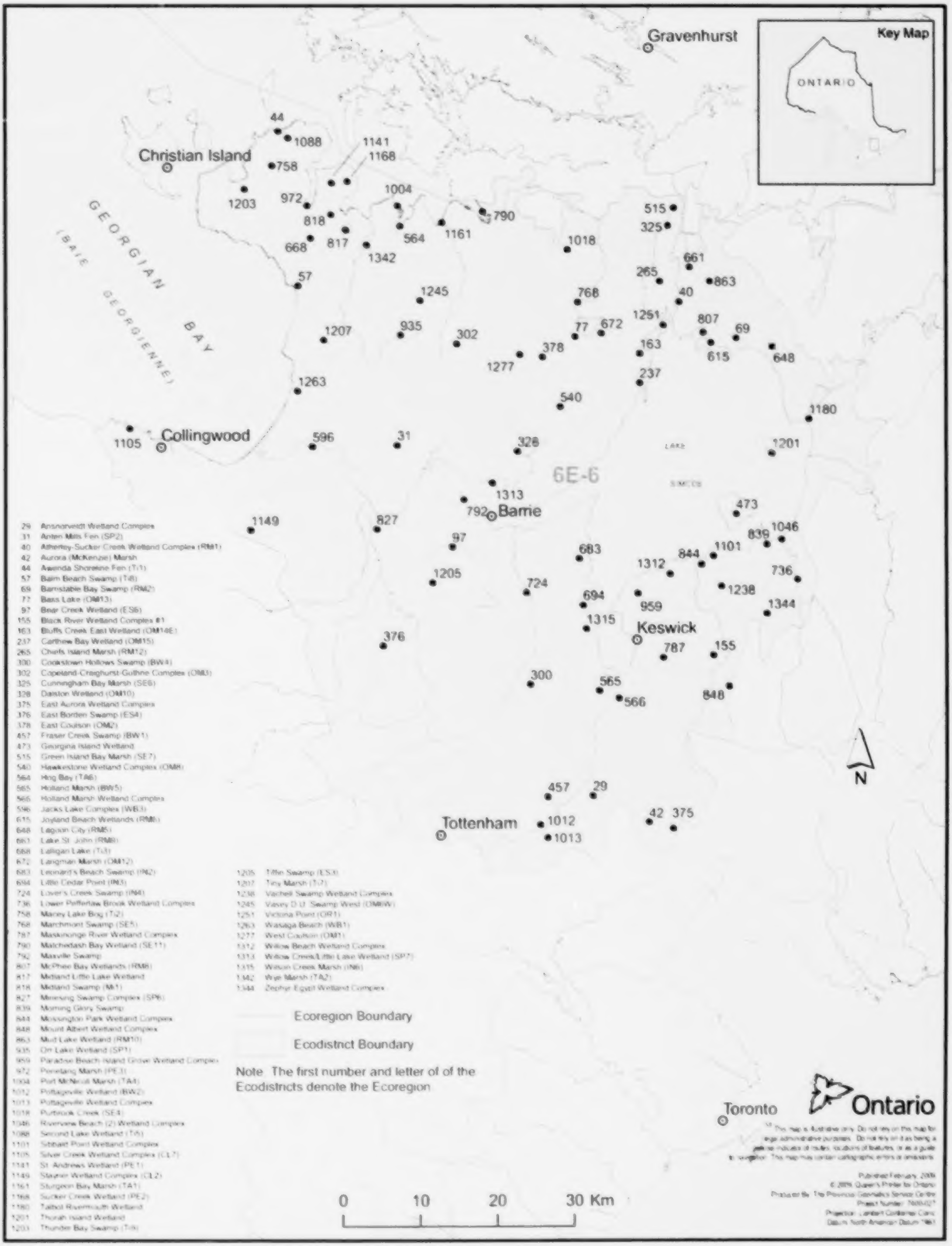


Fig. 6-16. Provincially Significant Wetlands in Ecodistricts 7E-4 and 6E-7.

Note: Although the key characteristics of a wetland generally are quite stable, outer boundaries can change and boundary verification or re-evaluation may be necessary from time to time. Wetland evaluations are viewed as open files to which new information can be added as it becomes available. Some PSWs are currently being re-evaluated and/or have not yet been entered into the MNR's Natural Resources Values Information System (NRVIS) database. Please contact the appropriate MNR District Office if you have any questions about the location or status of PSWs.

Fig 6-17. Provincially Significant Wetlands in Ecodistrict 6E-6.

Note: Although the key characteristics of a wetland generally are quite stable, outer boundaries can change and boundary verification or re-evaluation may be necessary from time to time. Wetland evaluations are viewed as open files to which new information can be added as it becomes available. Some PSWs are currently being re-evaluated and/or have not yet been entered into the MNR's Natural Resources Values Information System (NRVIS) database. Please contact the appropriate MNR District Office if you have any questions about the location or status of PSWs.



29	Ansnorveldt Wetland Complex
31	Anten Mills Fen (SP2)
40	Atherley-Sucker Creek Wetland Complex (RM1)
42	Aurora (McKenzie) Marsh
44	Awenda Shoreline Fen (Ti1)
57	Balm Beach Swamp (Ti8)
69	Barnstable Bay Swamp (RM2)
77	Bass Lake (OM13)
97	Bear Creek Wetland (ES6)
155	Black River Wetland Complex #1
163	Bluffs Creek East Wetland (OM14E)
237	Carthew Bay Wetland (OM15)
265	Chiefs Island Marsh (RM12)
300	Cookstown Hollows Swamp (BW4)
302	Copeland-Craighurst-Guthrie Complex (OM3)
325	Cunningham Bay Marsh (SE6)
328	Dalston Wetland (OM10)
375	East Aurora Wetland Complex
376	East Borden Swamp (ES4)
378	East Coulson (OM2)
457	Fraser Creek Swamp (BW1)
473	Georgina Island Wetland
515	Green Island Bay Marsh (SE7)
540	Hawkestone Wetland Complex (OM8)
564	Hog Bay (TA6)
565	Holland Marsh (BW5)
566	Holland Marsh Wetland Complex
596	Jacks Lake Complex (WB3)
615	Joyland Beach Wetlands (RM6)
648	Lagoon City (RM5)
661	Lake St. John (RM9)
668	Lalligan Lake (Ti3)
672	Langman Marsh (OM12)
683	Leonard's Beach Swamp (IN2)
694	Little Cedar Point (IN3)
724	Lover's Creek Swamp (IN4)
736	Lower Pefferlaw Brook Wetland Complex
758	Macey Lake Bog (Ti2)
768	Marchmont Swamp (SE5)
787	Maskinonge River Wetland Complex
790	Matchedash Bay Wetland (SE11)
792	Maxville Swamp
807	McPhee Bay Wetlands (RM8)
817	Midland Little Lake Wetland
818	Midland Swamp (Mi1)
827	Minesing Swamp Complex (SP6)
839	Morning Glory Swamp
844	Mossington Park Wetland Complex
848	Mount Albert Wetland Complex
863	Mud Lake Wetland (RM10)
935	Orr Lake Wetland (SP1)
959	Paradise Beach-Island Grove Wetland Complex
972	Penetang Marsh (PE3)
1004	Port McNicoll Marsh (TA4)
1012	Pottageville Wetland (BW2)
1013	Pottageville Wetland Complex
1018	Purbrook Creek (SE4)
1046	Riverview Beach (2) Wetland Complex
1088	Second Lake Wetland (Ti5)
1101	Sibbald Point Wetland Complex
1105	Silver Creek Wetland Complex (CL7)
1141	St. Andrews Wetland (PE1)
1149	Stayner Wetland Complex (CL2)
1161	Sturgeon Bay Marsh (TA1)
1168	Sucker Creek Wetland (PE2)
1180	Talbot Rivermouth Wetland
1201	Thorah Island Wetland
1203	Thunder Bay Swamp (Ti6)
1205	Tiffin Swamp (ES3)
1207	Tiny Marsh (Ti7)
1238	Vachell Swamp Wetland Complex
1245	Vasey D.U. Swamp West (OM9W)
1251	Victoria Point (OR1)
1263	Wasaga Beach (WB1)
1277	West Coulson (OM1)
1312	Willow Beach Wetland Complex
1313	Willow Creek/Little Lake Wetland (SP7)
1315	Wilson Creek Marsh (IN6)
1342	Wye Marsh (TA2)
1344	Zephyr-Egypt Wetland Complex

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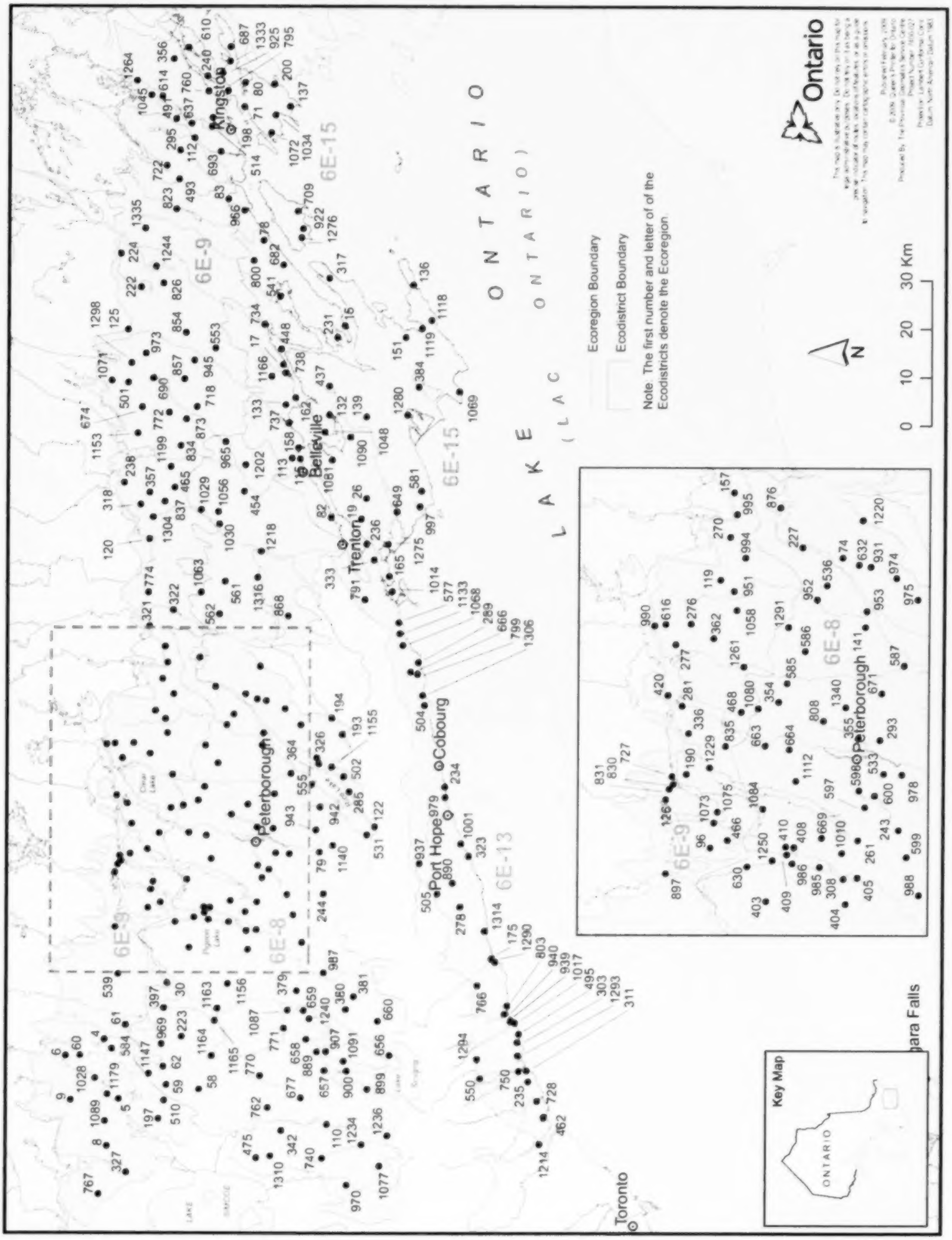
Fig. 6-18. Provincially Significant Wetlands in Ecodistricts 6E-8, 6E-9, 6E-13, and 6E-15.

Note: Although the key characteristics of a wetland generally are quite stable, outer boundaries can change and boundary verification or re-evaluation may be necessary from time to time. Wetland evaluations are viewed as open files to which new information can be added as it becomes available. Some PSWs are currently being re-evaluated and/or have not yet been entered into the MNR's Natural Resources Values Information System (NRVIS) database. Please contact the appropriate MNR District Office if you have any questions about the location or status of PSWs.


Kingston
Belleville
Trenton
Peterborough
Port Hope
Cobourg
Toronto
...agara Falls
6E-8
6E-9
6E-13
6E-15
LAKE ONTARIO
(LAC ONTARIO)
Pigeon Lake
Clear Lake
Lake Simcoe
Lake Scugog
Ecoregion Boundary
Ecodistrict Boundary
Key Map
ONTARIO
N
0
10
20
30 Km
Ontario
This map is illustrative only. Do not rely on this map for legal administrative purposes. Do not rely on it as being a precise indicator of routes, locations of features, or as a guide to navigation. This map may contain cartographic errors or omissions.
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Datum: North American Datum 1983

Note: The first number and letter of of the Ecodistricts denote the Ecoregion.

Provincially Significant Wetlands in Ecodistricts 6E-8, 6E-9, 6E-13, and 6E-15 – Legend

4 1987 CORBEN CR., SOMERVILLE TWP.
5 1987 TALBOT RIVER, CARDEN/ BEXLEY TWP.
6 1989 BALSAM LAKE, BEXLEY/ LAXTON TWP.
8 1992 CRANBERRY LAKE, CARDEN TWP.
9 1995 RUSH/DUCK COMPLEX, LAXTON TWP.
15 ADOLPHUSTOWN MARSH
17 AIRPORT CREEK
19 ALBURY SWAMP
26 AMELIASBURG WETLAND
30 ANSTONIA AND SANDY POINT
58 BALSAM LAKE NO. 01
59 BALSAM LAKE NO. 07 COMPLEX
60 BALSAM LAKE NO. 14
61 BALSAM LAKE NO. 15
62 BALSAM LAKE SOUTH BAY NO. 42
71 BARRETT BAY
74 BARRY LAKE COMPLEX
78 BATH POINT WETLAND
79 BAXTER CREEK
80 BAYFIELD BAY
82 BAYSIDE WETLAND
83 BAYVIEW BOG
96 BEAR CREEK WETLAND
110 BEAVERTON RIVER WETLAND COMPLEX
112 BELL CREEK SWAMP
113 BELL CREEK SWAMP COMPLEX
115 BELLEVILLE MARSH
119 BELOPORINE LAKE COMPLEX
120 BEND BAY – MOIRA LAKE WETLAND
122 BEWDLEY MARSH
125 BIDDY'S LAKE
126 BIG BALD LAKE EAST / WETLAND #53
132 BIG ISLAND MARSH
133 BIG MARSH – WETLAND
136 BIG SAND BAY
137 BIG SANDY BAY
139 BIG SWAMP/ LITTLE SWAMP COMPLEX WETLAND
141 BIRDSALL'S CREEK
151 BLACK CREEK WETLAND
157 BLAIRTON STATION
158 BLESSINGTON CREEK MARSH
162 BLUFF POINT
165 BOAT HARBOUR WETLAND
175 BOWMANVILLE COASTAL WETLAND COMPLEX
190 BUCKHORN SOUTH COMPLEX
193 BURNLEY CREEK HEADWATERS WETLAND COMPLEX
194 BURNLEY CREEK MIDRIVER WETLAND
197 BUTTERNUT CREEK (ELDON TWP.)
198 BUTTERNUT CREEK (PITTSBURGH TWP.)
200 BUTTON BAY
222 CAMDEN LAKE
223 CAMERON LAKE NO. 6
224 CAMERON SWAMP
227 CANAL WETLAND
231 CARNACHAN BAY
234 CARR'S MARSH (PETER'S ROCK MARSH)
235 CARRUTHERS CREEK WETLAND COMPLEX
236 CARRYING PLACE
238 CASSIDY MARSH
240 CASSIDY'S BAY
243 CAVAN BOG WETLAND COMPLEX
244 CAVAN CREEK WETLAND
261 CHEMONG LAKE NO. 25
270 CIRCULAR WETLAND
276 CLARINA EXTENSION COMPLEX
277 CLARINA WETLAND
278 CLARKE SUMMIT WETLAND COMPLEX
281 CLEAR LAKE NORTH
285 CLOSE POINT
289 COLBORNE CREEK
293 COLD SPRINGS & YANKEE BONNET WETLAND
295 COLLINS CREEK COMPLEX
303 CORBETT CREEK COASTAL WETLAND COMPLEX
308 COWAN'S BAY
311 CRANBERRY MARSH
317 CRESSY SWAMP
318 CROOKSTON FEN
321 CROWE LAKE WETLAND NO. 2
322 CROWE RIVER MARSH
323 CRYSLER POINT
326 CURTIS POINT
327 DALRYMPLE LAKE (RM3)
333 DEAD CREEK MARSH COMPLEX
336 DEER BAY EAST
342 DERRYVILLE EAST WETLAND COMPLEX
354 DOURO NORTH COMPLEX
355 DOWNER'S CORNERS
356 DOWNEY WETLAND
357 DRAG LAKE
362 DUMMER SWAMP
364 DUNNETTE LANDING
379 EAST CROSS CREEK NO.15
380 EAST CROSS CREEK WETLAND NO. 15
381 EAST CROSS CREEK WETLAND NO. 38
384 EAST LAKE MARSH
397 ELLERY BAY
403 EMILY CREEK NO. 2
404 EMILY CREEK NO. 8
405 EMILY PARK WETLAND
408 ENNISMORE NO. 10
409 ENNISMORE NO. 8
410 ENNISMORE TOWNSHIP WETLAND NO. 9
420 FAIRY LAKE ISLAND COMPLEX
437 FISH LAKE
448 FORESTER'S ISLAND
454 FOXBORO SWAMP
462 FRENCHMAN'S BAY MARSHES
465 FULLER CREEK
466 FULTON'S BAY – OAK ORCHARD WETLAND
468 GALESBURG
475 GIBSON HILL SWAMP
491 GLENBURNIE MARSH
493 GLENVALE CREEK WETLAND
495 GOLD POINT COASTAL WETLAND
501 GOOSE CREEK FEN
502 GOOSE CREEK WETLAND
504 GRAFTON SWAMP
505 GRAHAM CREEK HEADWATER WETLAND COMPLEX
510 GRASS CREEK (ELDON TWP.)
514 GREATER CATARAQUI MARSH
531 HARMONY ISLAND WETLAND
533 HARPER CREEK WETLAND
536 HASTINGS NORTH COMPLEX
539 HAWKER'S CREEK COMPLEX
541 HAY BAY MARSH
550 HEBER DOWN WETLAND COMPLEX
553 HEMPFLY SWAMP
555 HIAWATHA
561 HOARD'S CREEK FLATS WETLAND
562 HOARD'S CREEK TRIBUTARY
577 HUNT AND BEACH ROAD – POPHAM BAY WETLAND
581 HUYCK'S BAY
584 INDIAN POINT
585 INDIAN RIVER (WARSAW SOUTH) WETLAND
586 INDIAN RIVER EAST
587 INDIAN RIVER MOUTH
597 JACKSON CREEK
598 JACKSON CREEK EAST
599 JACKSON CREEK HEADWATERS
600 JACKSON CREEK LOWLANDS
610 JOHNSON BAY AND SEBURN'S CREEK
614 JOYCEVILLE MARSH
616 JULIA CREEK WETLAND
630 KILLABY'S POINT WETLAND
632 KILLORAN LAKE
637 KINGSTON MILLS MARSH
649 LAKE CONSECON MARSH
656 LAKE SCUGOG MARSH (OSLER MARSH)
657 LAKE SCUGOG NO. 17
658 LAKE SCUGOG NO. 19
659 LAKE SCUGOG NO. 23
660 LAKE SCUGOG WETLAND NO. 37
663 LAKEFIELD MARSH
664 LAKEFIELD SOUTH COMPLEX
666 LAKEPORT
669 LANCASTER BAY COMPLEX
671 LANG COMPLEX
674 LARKIN'S FEN
677 LAYTON RIVER WETLAND COMPLEX
682 LENNOX HYDRO
687 LEWIS BAY
690 LIME LAKE FEN
693 LITTLE CATARAQUI CREEK COMPLEX
709 LONG POINT MARSH
718 LOST WETLAND
722 LOUGHBOROUGH LAKE SOUTH
727 LOWER BUCKHORN LAKE COMPLEX
728 LOWER DUFFINS CREEK WETLAND COMPLEX
734 LOWER NAPANEE RIVER COMPLEX
737 LOWER SALMON RIVER WETLAND
738 LOWER SUCKER CREEK
740 LOWER UXBRIDGE BROOK WETLAND COMPLEX
750 LYNDE CREEK COASTAL WETLAND COMPLEX
760 MADOMA MARSH (TREASURE ISLAND)
762 MANILLA SWAMP WETLAND COMPLEX
766 MAPLE GROVE WETLAND COMPLEX
767 MARA COUNTY FOREST WETLAND (RM7)
770 MARIPOSA BROOK NO. 40 COMPLEX
771 MARIPOSA BROOK NO. 47
772 MARLAND LAKE WETLAND
774 MARMORA MINES WETLAND
791 MATSON LAKE
795 MCDONNELL BAY
799 MCGLENNON WETLAND

Continued on page 204

Provincially Significant Wetlands in Ecodistricts 6E-8, 6E-9, 6E-13, and 6E-15 – Legend

800	MCINTYRE SWAMP
803	MCLAUGHLIN BAY WETLAND COMPLEX
808	MEADE CREEK COMPLEX
823	MILLHAVEN CREEK
826	MILSAP SWAMP
830	MISSISSAGUA RIVER MOUTH WETLAND
831	MISSISSAUGA RIVER MOUTH WETLAND
834	MONEYMORE WETLAND
835	MOORE LAKE
837	MORELLAND LAKE
854	MUD CREEK
857	MUD LAKE
868	MURRAY MARSH
873	MYREHALL WETLAND
876	NAPPAN ISLAND COMPLEX
889	NEWMANS BEACH WEST NO. 63 WETLAND
890	NEWTONVILLE WETLAND
897	NOGIE'S CREEK MOUTH
899	NONQUON RIVER WETLAND NO. 7
900	NONQUON RIVERMOUTH WETLAND COMPLEX
907	NORTH END SCUGOG ISLAND WETLAND COMPLEX
922	NUT ISLAND DUCK CLUB MARSH
925	OAK POINT
931	O'MELIA LAMEY LAKE WETLAND
937	OSACA WETLAND
939	OSHAWA CREEK COASTAL WETLAND COMPLEX
940	OSHAWA SECOND MARSH
942	OTONABEE LOWER RIVER COMPLEX
943	OTONABEE MIDRIVER COMPLEX
945	OTTER CREEK
951	OUSE (EAST) RIVER NORTH
952	OUSE RIVER MIDDLE COMPLEX
953	OUSE RIVER MOUTH
965	PARKS CREEK
966	PARROTT BAY
969	PEARNS CREEK
970	PEFFERLAW UDORA WETLAND COMPLEX
973	PENNELL'S CREEK
974	PERCY (HALFWAY) CREEK WETLAND
975	PERCY CREEK WETLAND
978	PETERBOROUGH AIRPORT WETLAND COMPLEX
979	PETER'S ROCK NO. 2
985	PIGEON LAKE NO. 14
986	PIGEON LAKE NO. 15
987	PIGEON RIVER NO. 20
988	PIGEON RIVER NO. 23 COMPLEX
990	PINE ISLAND SOUTH
994	PLATO CREEK HEADWATER COMPLEX
995	PLATO CREEK WETLAND
997	PLEASANT BAY
1001	PORT BRITAIN
1010	POTASH CREEK COMPLEX
1014	PRESQU'ILE BAY MARSH
1017	PUMPHOUSE COASTAL WETLAND COMPLEX
1028	RAVEN LAKE
1029	RAWDON CREEK SWAMP
1030	RAWDON CREEK WETLAND COMPLEX
1034	REEDS BAY
1045	RIVER STYX
1048	ROBINSON COVE MARSH
1056	ROSS LAKE WETLAND
1058	ROTTEN LAKE
1063	RYLSTONE WETLAND
1068	SALEM WOODS WETLAND
1069	SALMON POINT
1071	SAMPSON LAKE FEN
1072	SAND BAY
1073	SANDY CREEK
1075	SANDY LAKE SOUTH
1077	SANFORD WETLAND COMPLEX
1080	SAWER CREEK WETLAND
1081	SAWGUIN CREEK MARSH
1084	SCOLLARD BAY
1087	SCUGOG RIVER AND MARIPOSA BROOK
1089	SEDGE WREN MARSH
1090	SELBY CREEK HEADWATER SWAMP
1091	SEVEN MILE ISLAND WETLAND
1112	SNELGROVE BROOK
1118	SOUTH BAY COASTAL WETLAND
1119	SOUTH BAY MARSH
1133	SPENCER POINT
1140	SQUIRREL CREEK
1147	STAPLES CREEK
1153	STOCO FEN
1155	STONEY CREEK COMPLEX
1156	STONEY CREEK HEADWATERS
1163	STURGEON LAKE NO. 27
1164	STURGEON LAKE NO. 19
1165	STURGEON LAKE NO. 26
1166	SUCKER CREEK TRIBUTARIES
1179	TALBOT RIVER
1199	THOMASBURG MARSH
1202	THRASHER'S CORNERS WETLAND
1214	TOWNLINE SWAMP WETLAND COMPLEX
1218	TRENT RIVER FINAL BEND SWAMP
1220	TROUT CREEK
1229	UPPER CHEMONG LAKE NO. 54
1234	UPPER UXBRIDGE BROOK WETLAND COMPLEX
1236	UXBRIDGE BOG
1240	VALENTIA SOUTH
1244	VARTY LAKE
1250	VICTORIA PARK MARSH
1261	WARSAW CAVES COMPLEX
1264	WASHBURN - STORRINGTON SWAMP
1275	WELLER'S BAY COMPLEX
1276	WEMP'S BAY MARSH
1280	WEST LAKE
1290	WESTSIDE BEACH MARSH
1291	WESTWOOD
1293	WHITBY HARBOUR WETLAND COMPLEX
1294	WHITBY-OSHAWA IROQUOIS BEACH WETLAND COMPLEX
1298	WHITE LAKE WETLAND
1304	WHITE SNAKE LAKES
1306	WICKLOW BAY WETLAND
1310	WILFRID BOG
1314	WILMOT RIVERMOUTH WETLAND
1316	WILSON ISLAND EAST WETLAND
1333	WOLFE ISLAND COMPLEX
1335	WOLFE SWAMP
1340	WOODVIEW SWAMP

Fig. 6-19. Provincially Significant Wetlands in Ecodistricts 6E-10, 6E-11, 6E-12, and 6E-16.

Note: Although the key characteristics of a wetland generally are quite stable, outer boundaries can change and boundary verification or re-evaluation may be necessary from time to time. Wetland evaluations are viewed as open files to which new information can be added as it becomes available. Some PSWs are currently being re-evaluated and/or have not yet been entered into the MNR's Natural Resources Values Information System (NRVIS) database. Please contact the appropriate MNR District Office if you have any questions about the location or status of PSWs.

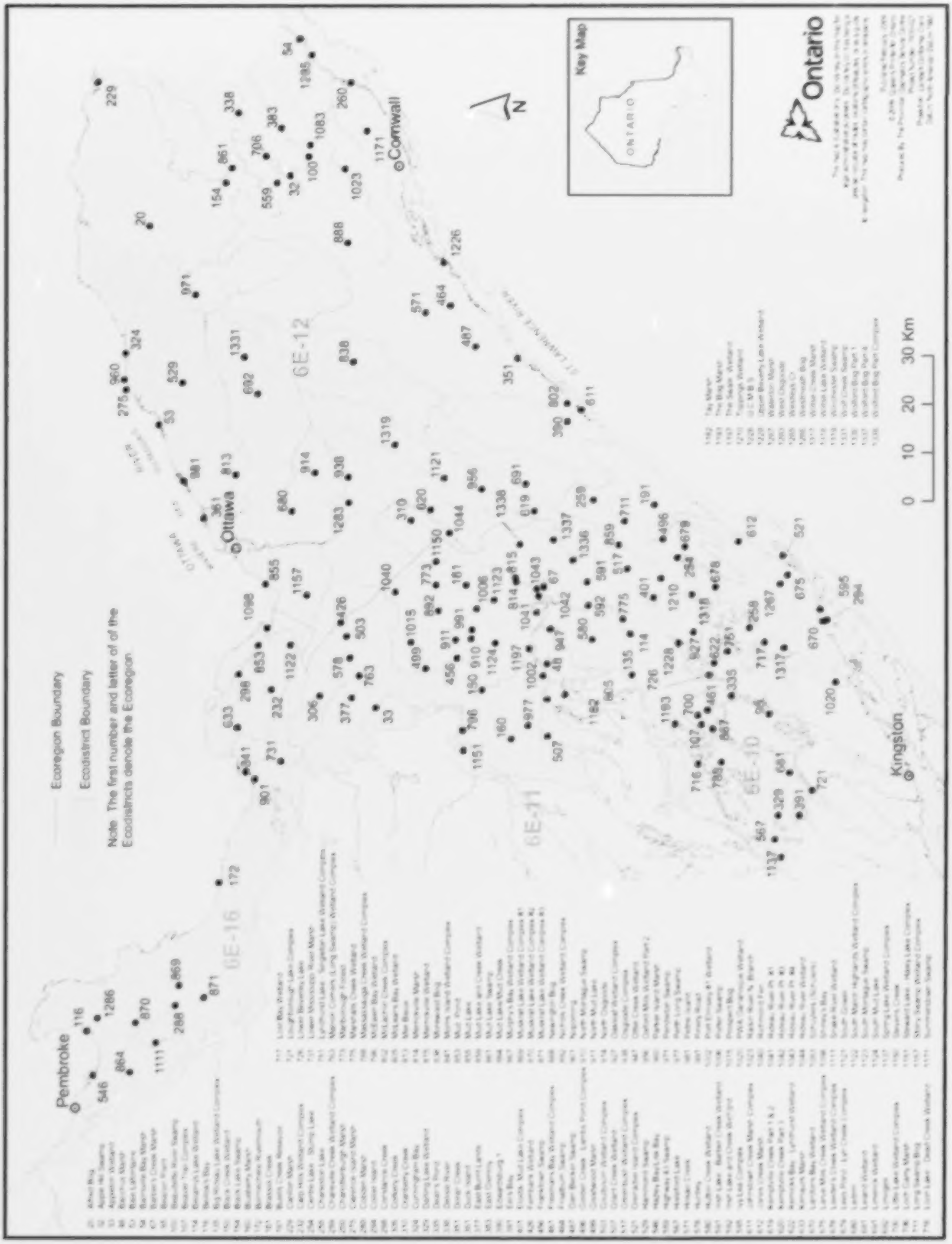


Fig. 6-20. Provincially Significant Wetlands in Ecodistricts 5E-7, 5E-8, 5E-9, 5E-10, and 5E-11.

Note: Although the key characteristics of a wetland generally are quite stable, outer boundaries can change and boundary verification or re-evaluation may be necessary from time to time. Wetland evaluations are viewed as open files to which new information can be added as it becomes available. Some PSWs are currently being re-evaluated and/or have not yet been entered into the MNR's Natural Resources Values Information System (NRVIS) database. Please contact the appropriate MNR District Office if you have any questions about the location or status of PSWs.

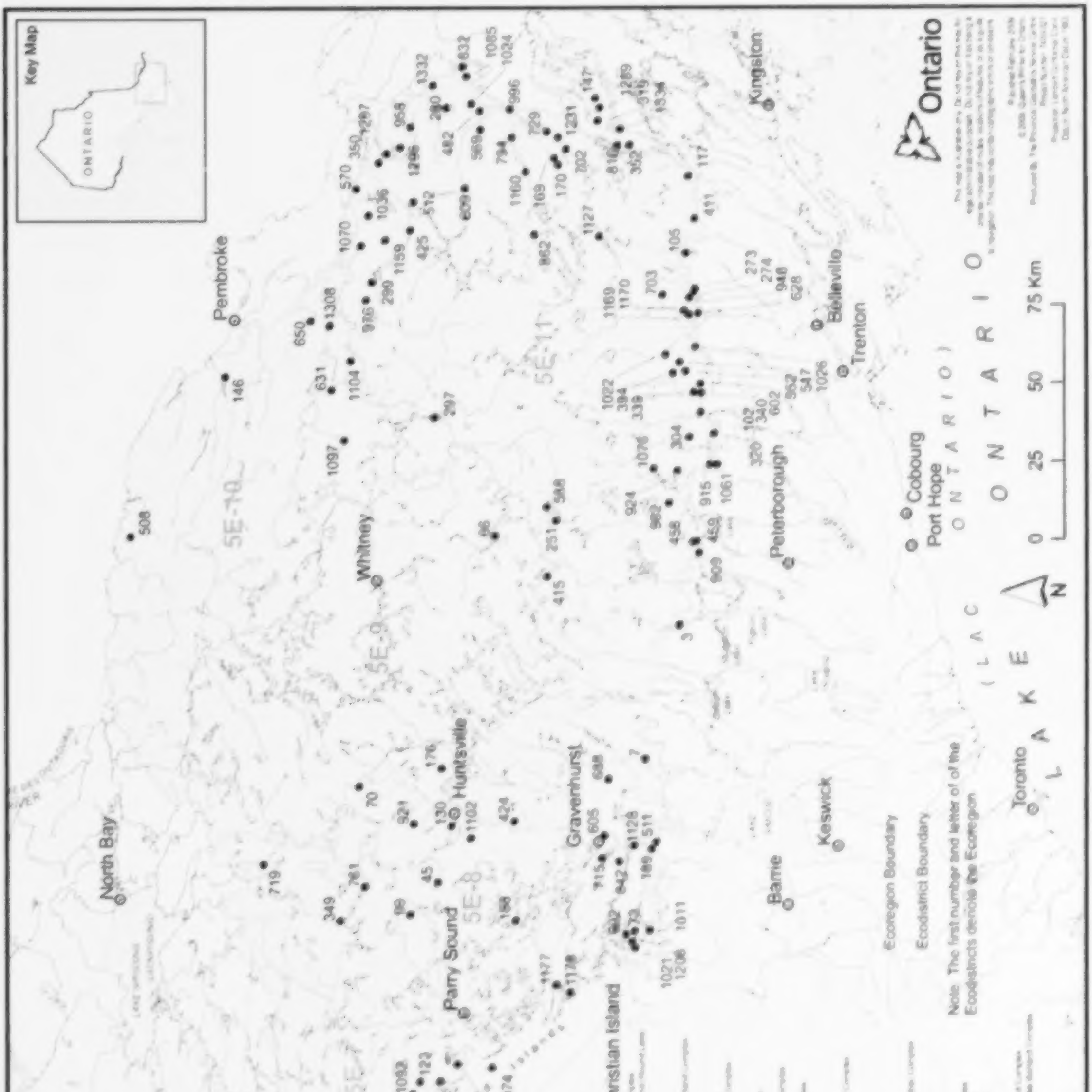


Fig. 6-21. Provincially Significant Wetlands in Ecodistricts 6E-14, 6E-17, 5E-1, 5E-3, 5E-4, 5E-5, 5E-6, 5E-13, 4E-3, and 4E-4.

Note: Although the key characteristics of a wetland generally are quite stable, outer boundaries can change and boundary verification or re-evaluation may be necessary from time to time. Wetland evaluations are viewed as open files to which new information can be added as it becomes available. Some PSWs are currently being re-evaluated and/or have not yet been entered into the MNR's Natural Resources Values Information System (NRVIS) database. Please contact the appropriate MNR District Office if you have any questions about the location or status of PSWs.

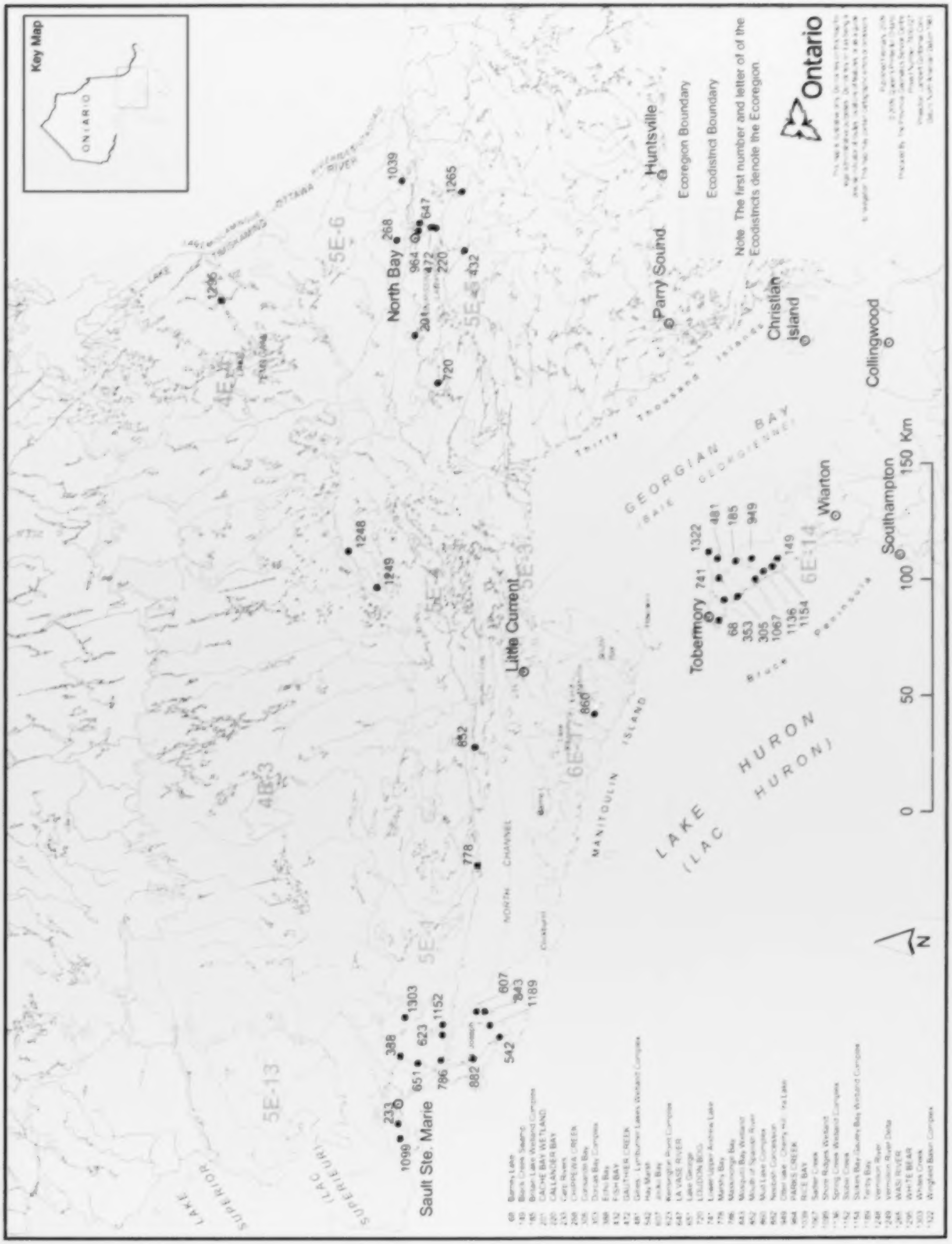


Fig. 6-22. Provincially Significant Wetlands in Ecodistricts 3E-5, 3E-6, 3W-1, 3W-3, 3W-4, 4W-1, 4W-2, 5S-2, and 4S-2.

Note: Although the key characteristics of a wetland generally are quite stable, outer boundaries can change and boundary verification or re-evaluation may be necessary from time to time. Wetland evaluations are viewed as open files to which new information can be added as it becomes available. Some PSWs are currently being re-evaluated and/or have not yet been entered into the MNR's Natural Resources Values Information System (NRVIS) database. Please contact the appropriate MNR District Office if you have any questions about the location or status of PSWs.

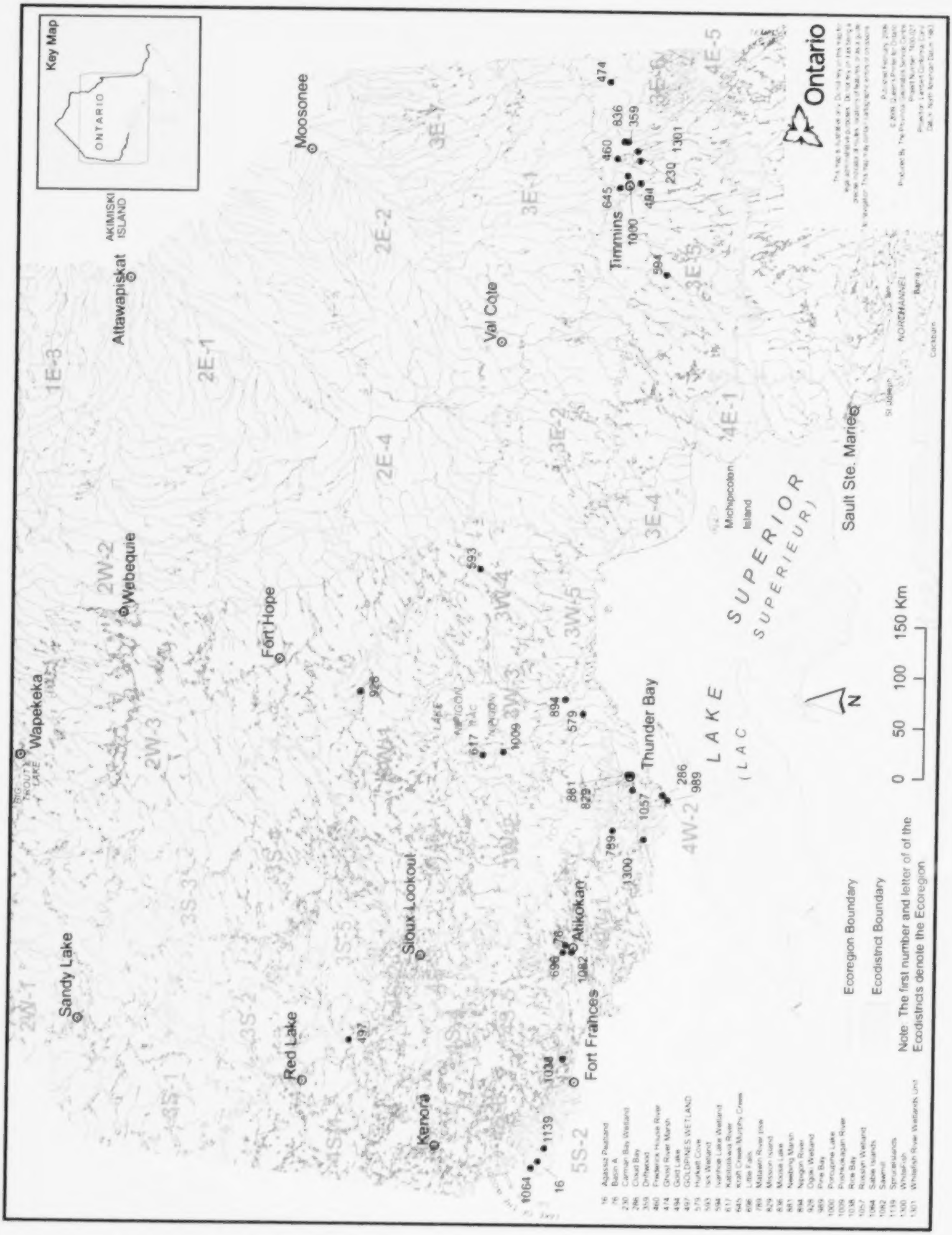


Image by P.A. Gray

B. Social Component (continued):

- Ownership
- Size.
- Aboriginal and Cultural Values.

C. Hydrological Component:

- Flood Attenuation.
- Groundwater Recharge.
- Downstream Water Quality Improvement.
- Carbon Sink.
- Shoreline Erosion Control.
- Groundwater Discharge.

D. Special Features:

- Rarity.
- Significant Features or Habitat.
- Ecosystem Age.
- Great Lakes Coastal Wetlands (MNR 2002b, c).

Management Objectives and/or Guidelines

The provincial wetland policies are implemented through municipal official plans, plans for subdivision, consents, zoning by-laws, minor variances, and other planning tools. the Provincial policies state development and site alteration shall not be permitted:

- In Provincially Significant Wetlands in Ecoregions 5E, 6E, and 7E, and Provincially Significant Coastal Wetlands.
- In Provincially Significant Wetlands on the Canadian Shield north of Ecoregion 5E, 6E, and 7E, unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.
- On lands adjacent to Provincially Significant Wetlands unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated that there are no negative impacts on the natural features or their ecological functions (MMAH 2005a).

The Degree of Protection for Provincially Significant Wetlands and Other Wetlands, and the Corresponding IUCN Protected Area Management Category: A Preliminary Assessment

Provincially Significant Wetlands (PSW) protected under the auspices of the *Provincial Policy Statement* (PPS) and/or through municipal official plans, land trusts, legal agreements, or other protection mechanisms may be considered 'fully protected' and classified under the IUCN system as Category Ia, III, or IV protected areas. The PPS wetland policies, which refer to PSWs as significant wetlands, are applied in municipal official plans and other planning tools. The PPS wetland policies state that development and site alteration shall not be permitted in significant wetlands, where site alteration is defined to include activities that would change the landform and natural vegetative characteristics of the site. This, by inference includes the prohibition of peat mining. The PPS wetland policies are enforced through municipal by-laws and regulations and powers under the *Conservation Authorities Act* (See Section 6.11 on page 246), the *Niagara Escarpment Planning and Development Act* (see Section 6.14 on page 259), the *Oak Ridges Moraine Conservation Act* (see Section 6.15 on page 266), the

Greenbelt Act (see Section 6.16 on page 270), and the *Lake Simcoe Protection Act, 2008* (see Section 6.17 on page 275).

It is possible that some PSWs could be affected by activities related to the continuation of existing incompatible land uses, drainage activities authorized under the auspices of other legislation, or the construction and maintenance of infrastructure permitted as a result of decisions made during a formal environmental assessment process. Therefore, a site by site evaluation would be necessary to confirm that a wetland qualifies for inclusion as a 'fully protected' area in the IUCN classification.

In addition to Provincially Significant Wetlands, there are provisions for the care and protection of other important wetlands in many ecosystems in Ontario. For example, the *Oak Ridges Moraine Conservation Plan* (under the auspices of the *Oak Ridges Moraine Conservation Act*), the *Greenbelt Plan* (under the auspices of the *Greenbelt Act*), the *Niagara Escarpment Plan* (under the auspices of the *Niagara Escarpment Planning and Development Act*), and the *Lake Simcoe Protection Plan* (under the auspices of the *Lake Simcoe Protection Act*) provide for the care and protection of a variety of wetland assets. A site by site evaluation would be necessary to confirm that a wetland qualifies for inclusion as a 'fully protected' area in the IUCN classification.

It is important to note that most of Ontario's wetlands are located on Crown land in northern ecosystems on the Canadian Shield and in the Hudson Bay Lowlands. For planning and management purposes, northern wetlands on Crown land are subject to conditions in the *Public Lands Act*, and a policy and a formal land use permit process are used to prohibit and/or regulate activities such as peat mining. Therefore, PSWs protected under the auspices of the *Public Lands Act* would qualify for inclusion in the IUCN protected area classification system. As is the case for wetlands in southern Ontario, a site by site evaluation would be necessary to confirm that a wetland qualifies for inclusion as a 'fully protected' area in the IUCN classification.

Key Contact(s)

Biodiversity Branch
Ministry of Natural Resources
2nd Floor, Robinson Place, North Tower
300 Water Street
P.O. Box 7000, Peterborough, Ontario, K9J 8M5
Telephone: 705-755-1917
Fax: 705-755-2168

6.7 Areas of Natural and Scientific Interest

Introduction

Formal life science surveys to identify and document natural areas were initiated in Ontario in the late 1960's under the auspices of the International Biological Programme (Davidson and Beechey, 1982). In 1975, MNR's Parks and Recreational Areas Program extended these efforts through a provincial-level survey to identify areas with significant life science and earth science values that could potentially qualify for protection as Provincial Parks (e.g., White, 1993). Cabinet approval of the *Ontario Provincial Parks Policy* in 1978 provided further impetus for the completion of life science surveys of Ecodistricts (in southern Ontario) and Ecoregions (in northern Ontario), and thematic geological studies to identify candidate areas for Provincial Parks. Through these system planning studies, many significant areas were identified and described on private and public lands.

Unfortunately, fiscal and logistical constraints prohibited the acquisition and/or designation of most of these areas as Provincial Parks, and many natural asset managers called for a more integrated and collaborative approach to identifying and caring for these areas. For example, Richards (1982) suggested "*...that the combined interests in Ontario which support protection objectives, attempt through cooperation to pool their resources in such a way that the net collective benefits will be greater than the sum of individual benefits. In essence, through closer cooperation, the protection of significant areas across the province could be achieved more completely and more rapidly than if every interest group were to pursue its own individual objective in isolation from all other, similarly isolated groups.*" In response, Parks and Recreational Areas Branch staff worked with clients and partners to explore other options available to recognize the important values in these areas and work toward their protection. The experiences of the British Nature Conservancy (Perring, 1982) along with examples of natural areas programs in the State of Wisconsin and other jurisdictions served as a catalyst in the identification of a system of areas, formally called Areas of Natural and Scientific Interest in 1982.

Areas of Natural and Scientific Interest (ANSI) are publicly or privately owned areas of land and water containing natural landscapes and features with values related to protection, natural heritage appreciation, scientific study, or education (MNR, 1983a; Reid and Moull, 1986). An Area of Natural and Scientific Interest policy was endorsed in 1983 under the auspices of MNR's Strategic Land Use Planning process, and in 1988 implementation guidelines were approved. Areas of Natural and Scientific Interest were initially intended to complement MNR's Provincial Parks protection program by identifying key natural heritage areas on Crown and private lands that contribute to the representation of Ontario's earth science and life science diversity. ANSIs were graded as 'provincially', 'regionally', or 'locally' significant. Provincially recognized sites were regarded as important contributions to the system planning objectives of the Provincial Parks program. There are two types of Areas of Natural and Scientific Interest:

- **Earth Science Areas of Natural and Scientific Interest:** "*Earth Science ANSIs are geological in nature and consist of some of the most significant representative examples of the bedrock, fossil and landforms in Ontario and include examples of ongoing geological processes.*"

- **Life Science Areas of Natural and Scientific Interest:** "*Life Science ANSIs are significant representative segments of Ontario's biodiversity and natural landscapes including specific types of forests, valleys, prairies, and wetlands, their native plants and animals and their supportive environments. They contain relatively undisturbed vegetation and landforms and their associated species and communities*" (MNR, 2008).

ANSIs are located in southern Ontario, in the 'Far North', and in the Ontario Living Legacy planning area. In southern Ontario, 401 (99,275 ha) candidate and confirmed earth science Areas of Natural and Scientific Interest and 665 (333,354 ha) life science Areas of Natural and Scientific Interest have been described and mapped (Table 6-11, Figs. 6-23 to 6-30).

In addition to case-by-case efforts to acquire these sites, many are afforded recognition and protection under the *Provincial Policy Statement* through Regional Official Plans, and many have been provided some level of protection through cooperation with private landowners and partners. In the 'Far North', 29 (933,160 ha) earth science ANSIs and 1 (32,453 ha) life science ANSI have been described and mapped (Fig 6-31). With the approval of the *Ontario Living Legacy Land Use Strategy* (MNR, 1999a), most provincially significant Areas of Natural and Scientific Interest in the Ontario Living Legacy planning area were designated Provincial Parks, Conservation Reserves, and Enhanced Management Areas. Currently in the Ontario Living Legacy planning area, there are eight Areas of Natural and Scientific Interest encompassing 7,613 ha that are designated as General Use Areas with specific land use policies that provide some protection (Table 6-12, Fig 6-32).

Legislation and Policy Basis

Areas of Natural and Scientific Interest, or portions of these areas, can be designated as special zones and administered to protect natural and scientific values. Protection mechanisms include:

- Identification under Section 12 of the *Public Lands Act*.
- Withdrawal from prospecting and staking under Section 36 of the *Mining Act*.
- Recognition as an Area of Concern in Forest Management Plans developed under the *Crown Forest Sustainability Act*.
- Recognition under Policy 2.1 of the *Provincial Policy Statement* under the *Planning Act*.
- Recognition under Policy 2.4 of the *Niagara Escarpment Plan*.
- Easements under the authority of the *Ontario Heritage Act*.
- The *Greenbelt Plan*, the *Oak Ridges Moraine Conservation Plan*, and the *Lake Simcoe Protection Plan*.
- Agreements associated with MNR's Conservation Land Tax Incentive Program.

In addition, Areas of Natural and Scientific Interest are protected and managed as Conservation Authority Conservation Areas, Conservation Reserves, Provincial Parks, National Capital Commission properties, through District Land Use Guidelines, and through agreements with private landowners.

Protection Goal and/or Objectives

Areas of Natural and Scientific Interest were initially established to encourage protection of areas not regulated as Provincial Parks. They were designed to protect areas of provincial, regional, or local significance. The Ministry of Natural Resources plays an active role in identifying and protecting provincially significant areas, and encourages other relevant agencies and organizations to protect areas of local or regional significance as well (MNR, 1988c).

As a result of the Lands for Life planning exercise (1997-1999), MNR introduced a dichotomous approach to the establishment and management of Areas of Natural and Scientific Interest in the Ontario Living Legacy planning area. All known Areas of Natural and Scientific Interest (formally approved or not) were considered in the search for representative areas to complete Ontario's protected areas system (one of the original Ontario Living Legacy objectives). In cases where Areas of Natural and Scientific Interest (whether considered and rejected, or not considered during the process for whatever reason) were not recommended for inclusion as formal protected areas (i.e., Provincial Park or Conservation Reserve), the areas were assigned to another land use designation (e.g., Enhanced Management Area), or placed into the "default" designation of General Use Area. Regardless of the designation, the area would not be subject to continuing interim protection strictly because of its status as an Area of Natural and Scientific Interest. This policy is outlined in the *Ontario Living Legacy Land Use Strategy*, which states that "*Where areas have been removed from resource management solely because of the potential for establishment of a park or conservation reserve, and this status has not been confirmed through a formal land use or resource planning process, these areas will be reinstated in the productive forest land base*" (MNR, 1999a:7).

Table 6-11. Areas of Natural and Scientific Interest located on public and private land in southern Ontario and Ontario's 'Far North' in relation to Ecoregions and Ecodistricts.

Ecoregions and Ecodistricts	Earth Sciences				Life Sciences				All ANSIs	
	Confirmed		Candidate		Confirmed		Candidate			
	No.	Area (Ha)	No.	Area (Ha)	No.	Area (Ha)	No.	Area (Ha)	No.	Area (Ha)
0E-1	0	0	1	45,796	0	0	0	0	1	45,796
1E-2	0	0	4	177,347	0	0	0	0	4	177,347
1E-3	0	0	9	263,772	0	0	0	0	9	263,772
2E-1	0	0	10	385,024	0	0	1	32,453	11	417,476
2E-2	0	0	2	42,015	0	0	0	0	2	42,015
2E-4	0	0	2	18,521	0	0	0	0	2	18,521
4E-1	1	685	0	0	0	0	0	0	1	685
5E-7	1	582	0	0	2	3,784	2	2,167	5	6,533
5E-11	0	0	0	0	5	751	0	0	5	751
6E-1	60	11,495	20	4,153	46	15,979	3	3,363	129	34,990
6E-2	7	1,077	1	1	7	5,214	2	797	17	7,088
6E-4	13	14,847	0	0	34	24,302	0	0	47	39,149
6E-5	29	8,654	6	80	21	21,987	12	2,829	68	33,549
6E-6	24	3,107	1	10	43	31,467	7	1,576	75	36,160
6E-7	28	11,794	13	6,356	34	1,453	44	23,087	119	42,689
6E-8	29	2,872	3	830	35	20,220	11	5,104	78	29,026
6E-9	16	1,714	1	360	23	14,085	0	0	40	16,159
6E10	2	1	0	0	14	8,129	7	3,844	23	11,974
6E-11	5	20	0	0	4	7,278	15	10,169	24	17,467
6E-12	24	3,722	0	0	5	8,251	35	23,740	64	35.713
6E-13	3	143	2	577	15	1,533	12	2,901	32	5,154
6E-14	8	9,538	0	0	21	24,397	0	0	29	33,936
6E-15	10	1,554	0	0	30	10,415	3	558	43	12,527
6E-16	4	300	0	0	2	1,753	9	7,376	15	9,429
6E-17	0	0	2	8	1	1,482	0	0	3	1,490
7E-1	4	7,566	0	0	18	5,848	0	0	22	13,414
7E-2	13	1,847	0	0	24	19,609	0	0	37	21,456
7E-3	37	3,499	23	539	46	8,814	27	1,863	133	14,715
7E-4	8	102	1	896	17	2,468	14	2,255	40	5,720
7E-5	1	417	0	0	0	0	0	0	1	417
7E-6	2	618	0	0	15	2,506	0	0	17	3,124
Total	329	86,152	101	946,283	462	241,724	204	124,083	1,096	1,398,242

Source: Land Information Ontario (2008).

The land use designation establishes the broad permitted uses, including the extent to which resource management can occur. It is important to note that areas retain their Areas of Natural and Scientific Interest identification as long as they retain the earth or life science values that resulted in their original identification as provincially significant, unless this identification is removed through a re-evaluation process. Even though the area is subject to resource management practices, the values, and therefore the significance of the area from a representation perspective, may endure for some time (possibly decades). For this reason, these areas continue to be recorded in MNR's data base management system (Natural Resource Values Information System – NRVIS) in the event that they are selected to achieve 'representation' shortfalls in future protection initiatives. There are eight Areas of Natural and Scientific Interest that are formally identified and protected through policies established in land use planning processes (see Table 6-12, Fig. 6-32). These areas are documented in the *Crown Land Use Policy Atlas* (MNR, 2006d).

Image by P.A. Gray

Selection Criteria

Areas of Natural and Scientific Interest are selected to protect earth science and life science values. Earth science targets are based on a framework that identifies rock types, fossil assemblages, and landform associations representative of Ontario's past and present geological environments. Life science targets are based on a framework that identifies outstanding and representative natural landscapes, environments, biotic community types, and native flora and fauna usually not represented in Provincial Parks but typically found in each of Ontario's 14 Ecoregions (MNR, 1988c). Earth and life science representation targets are achieved through MNR's gap analysis program, which is also used to identify candidate Provincial Parks and Conservation Reserves (see Crins and Kor, 1998, 2000).

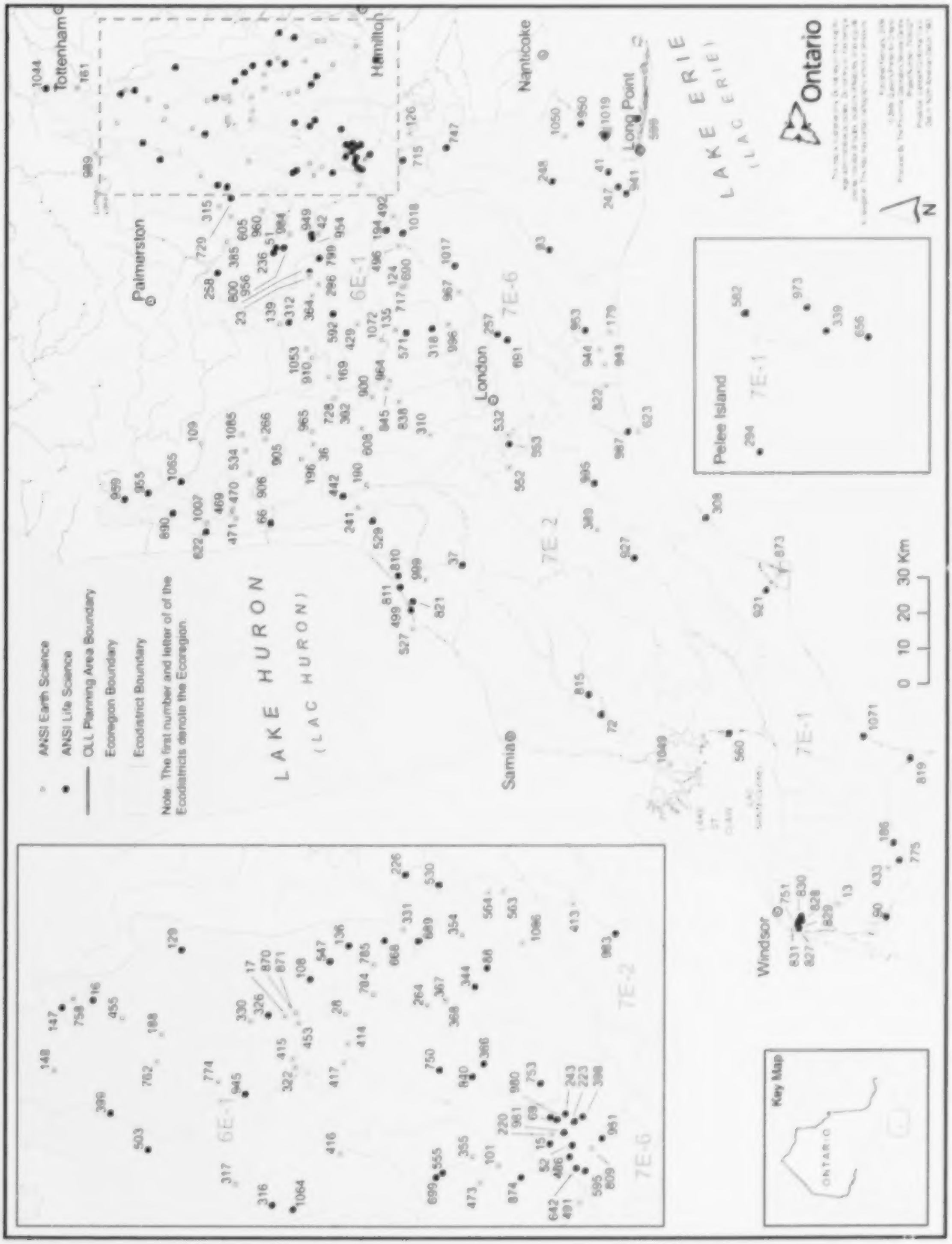
Table 6-12. The 8 Areas of Natural and Scientific Interest on Crown land in the Ontario Living Legacy Planning Area.

ANSI Name	Zone	MNR District	Area (ha)
1. Bearshead-Buckshoof Lake		Parry Sound	33
2. Big Chute		Parry Sound	213
3. Centennial Lake	Core Protection	Bancroft/Pembroke	113
Centennial Lake	Resource Management	Bancroft/Pembroke	896
4. Darling	Core Protection	Kemptville	25
Darling	Resource Management	Kemptville	38
5. Fortune-Schooner	Core Protection	Bancroft	2,733
Fortune-Schooner	Resource Management	Bancroft/Pembroke	1,231
6. Greenbough Esker	Resource Management	Pembroke	351
7. Griffith Uplands	Core Protection	Pembroke	297
Griffith Uplands	Resource Management	Pembroke	92
8. Summit Lake	Core Protection	Bancroft	444
Summit Lake	Resource Management	Bancroft	130
		Total	7,613

Source: MNR (2006d).

Fig. 6-23. Areas of Natural and Scientific Interest in Ecodistricts 7E-1, 7E-2, 7E-6, and 6E-1.

Note: Although the key characteristics of an ANSI generally are quite stable, outer boundaries can change and boundary verification or re-evaluation may be necessary from time to time. ANSI evaluations are viewed as open files to which new information can be added as it becomes available. Some ANSIs are currently being re-evaluated and/or have not yet been entered into the MNR's Natural Resources Values Information System (NRVIS) database. Please contact the appropriate MNR District Office if you have any questions about the location or status of ANSIs.



Areas of Natural and Scientific Interest in Ecodistricts 7E-1, 7E-2, 7E-6, and 6E-1– Legend

13	ALLIED CHEMICAL QUARRY
15	ALPS WOODS
16	ALTON BRANCH SWAMP
17	AMABEL FORMATION (ERAMOSA MEMBER)
23	AMULREE-WELLESLEY KAMES
28	ARKELL MELTWATER CHANNEL
36	AUSABLE RIVER SINKHOLE
37	AUSABLE RIVER VALLEY LIFE
41	BACUS WOODS
42	BADEN HILLS KAMES
51	BAMBERG SWAMP AND BOG LAKE
52	BANISTER AND WRIGLEY LAKES
66	BAYFIELD RIVER
69	BEAKE POND
72	BEAR CREEK FLOODPLAIN
88	BEVERLY SWAMP
90	BIG CREEK MARSH
93	BIG OTTER CREEK
101	BLAIR KAME
108	BLUE SPRINGS CREEK WETLANDS
109	BLYTH AREA
124	BRAEMER OUTWASH
126	BRANTFORD TUFA MOUNDS
129	BRISBANE WOODS
135	BROOKSDALE GLACIAL COMPLEX
136	BROOKVILLE SWAMP
139	BRUNNER SPILLWAY
147	CALEDON LAKE FORESTS
148	CALEDON MELTWATER CHANNEL WEST
161	CANNINGS FALLS ES
169	CARLINGFORD SPILLWAY
179	CATFISH CREEK TILL
186	CEDAR CREEK
188	CEDAR VALLEY OUTWASH
190	CENTRALIA
194	CHESNEY BOG
196	CHISELHURST SINKHOLE
220	COTTREL LAKE ESKER
223	CRANBERRY BOG
226	CRAWFORD LAKE MILTON OUTLIER VALLEY
236	CROSSHILL COMPLEX
241	DASHWOOD AREA
243	DEAN'S LAKE
247	DELHI BIG CREEK FLOODPLAIN
248	DELHI BIG CREEK VALLEY
257	DORCHESTER SWAMP
258	DORKING NORTH WOODLOT
264	DRUMLIN IN OUTWASH GRAVEL
266	DUBLIN MORAINE ESKER
294	EAST SISTER ISLAND
296	EASTHOPE MORAINE
308	ELGIN AND KENT SHORELINE
310	ELGINFIELD AREA
312	ELLICE HUCKLEBERRY SWAMP
315	ELMIRA MORAINE
316	ELORA GORGE
317	ELORA QUARRY
318	EMBRO UPLAND FOREST (UNOPENED TWELFTH WOODLOTS)
322	ERAMOSA ESKER CHANNEL
326	ERAMOSA RIVER VALLEY
330	EVERTON AREA
331	EXHUMED SILURIAN REEF
339	FISH POINT PROVINCIAL PARK
344	FLETCHER CREEK SWAMP FOREST
354	FREELTON ESKER
355	FREEPORT ESKER
362	FULLARTON MORAINE
364	GADS HILL MORAINE
366	GALT (MILL) CREEK AND FORESTS
367	GALT MORAINE
368	GALT MORAINE (CANDIDATE)
385	GLEN ALLAN TILL
389	GLENCOE LAKE ARKONA
398	GRAND RIVER FORESTS
399	GRAND RIVER VALLEY
413	GUELPH AND LOCKPORT FORMATIONS
414	GUELPH CORRECTIONAL CENTRE QUARRY
415	GUELPH DRUMLIN FIELD
416	GUELPH ESKER
417	GUELPH INTERSTADIAL SITE
429	HARMONY ROAD CUT
433	HARROW SITE ESKER
442	HAY SWAMP
453	HIGHWAY 7 ROAD CUT
455	HILLSBURGH MELTWATER CHANNEL
469	HOLMESVILLE AREA
470	HOLMESVILLE-WAWANOSH MORAINE
471	HOLMESVILLE-WYOMING MORAINE
473	HOMER WATSON PARK
486	HUNGRY HILL
491	INGERSOLL MORAINE OUTWASH FAN
492	INGERSOLL MORRAINE
496	INNERKIP QUARRY
499	IPPERWASH PROVINCIAL PARK EARTH AND LIFE ANSI
503	IRVINE CREEK
527	KETTLE POINT (ES)
529	KHIVA CONSERVATION FOREST
530	KILBRIDE SWAMP
532	KILWORTH LAKE MAUMEE
534	KINBURN SITE
547	KNATCHBULL SWAMP
552	KOMOKA LAKE MAUMEE
553	KOMOKA PARK RESERVE
555	LACKNER WOODS
560	LAKE ST. CLAIR MARSHES
563	LAKE WARREN WAVE WASHED DRUMLIN
564	LAKE WHITTLESEY WAVE WASHED DRUMLIN
571	LAKESIDE SWAMP
582	LIGHTHOUSE POINT
592	LITTLE LAKES BOG AND SWAMP FOREST COMPLEX
595	LITTLE TURNBULL LAKE
599	LONGPOINT
605	LOWER CANAGAGIGUE TILL
608	LUCAN MORAINE
622	MAITLAND RIVER VALLEY
623	MALAHIDE FORM / BRADTVILLE COTT / BOY SCOUT CAMP
642	MCCRONE LAKE
656	MIDDLE ISLAND
668	MOFFAT MORAINE
689	MOUNTSBERG WILDLIFE CENTRE
690	MUD CREEK
691	MUD LAKES (DINGMAN LAKES)
699	NATCHEZ HILLS UPLAND WOODS
715	NITH RIVER FORESTS
717	NONE IN DIGITAL FILE
728	NORTH THAMES RIVER
729	NORTH WOOLWICH SWAMP
747	OAKLAND SWAMP
750	OIL WELL BOG - LITTLE TRACT
751	OJIBWAY PRAIRIE PROVINCIAL NATURE RESERVE
753	OLIVER'S BOG
758	ORANGEVILLE MORAINE AND CALEDON LAKES
762	ORTON GLACIOLACUSTRINE SEDIMENTS
774	OUSTIC OUTWASH FAN
775	OXLEY POISON SUMAC SWAMP
784	PARIS, GALT & MOFFAT MORAINES
785	PARIS, GALT AND MOFFAT MORAINES
799	PHILLIPSBURG FOREST
800	PHILLIPSBURG SWAMP
809	PINEHURST LAKE KETTLES
810	PINERY PROVINCIAL PARK
811	PINERY PROVINCIAL PARK EARTH AND LIFE ANSI
815	PLUM CREEK
819	POINT PELEE NATIONAL PARK
821	PORT FRANKS WETLANDS AND FORESTED DUNES
822	PORT STANLEY TILL
827	PRAIRIE REMNANTS (BLACKOAK WOODS)
828	PRAIRIE REMNANTS (OJIBWAY PARK)
829	PRAIRIE REMNANTS (SOUTHEAST OF NATURE RESERVE)
830	PRAIRIE REMNANTS (SPRINGGARDEN FOREST)
831	PRAIRIE REMNANTS (TITCOMBE ROAD NORTH)
838	PROSPECT HILL MORAINE TOPOGRAPHY
840	PUSLINCH LAKE BOG AND WETLANDS
845	RANOCH ROAD CUT
870	ROCKWOOD CAVES
871	ROCKWOOD CONSERVATION AREA
873	RONDEAU PROVINCIAL PARK EARTH AND LIFE ANSI
874	ROSEVILLE SWAMP
890	SARATOGA SWAMP
900	SCIENCE HILL HUMMOCKY TOPOGRAPHY
905	SEAFORTH ESKER
906	SEAFORTH-WEST WAWANOSH MORAINES
910	SEEBACH HILL SPILLWAY
921	SINCLAIR'S BUSH
927	SKUNK'S MISERY
941	SOUTH WALSINGHAM SAND RIDGES
943	SPARTA LAKE WARREN LAKE WHITTLESEY BEACH
944	SPARTA-LAKE WARREN/LAKE WHITTLESEY BEACHES
945	SPEEDSIDE FOREST
949	SPONGY LAKE BOG
950	SPOOKY HOLLOW
951	SPOTTISWOOD LAKES
953	SPRINGWATER FOREST
954	ST. AGATHA BEECH MAPLE FOREST
955	ST. AUGUSTINE BOG AND SWAMP FOREST
956	ST. CLEMENTS SPHAGNUM BOG
959	ST. HELENS BEECH MAPLE FOREST
960	ST. JACOB'S HILL
964	ST. MARYS CEMENT CO.
965	STAFFA KAME COMPLEX
967	STEEL COMPANY OF CANADA
973	STONE ROAD ALVAR NATURE RESERVE
980	SUDDEN BOG
981	SUDDEN TRACT
983	SUMMIT BOG
984	SUNFISH LAKE KETTLE
987	TALBOT CREEK
989	TARBERT DRIFT
995	THAMES RIVER FLOODPLAIN
996	THAMESFORD MELTWATER CHANNEL
999	THEDFORD BRICKYARD
1007	TILLS IN GODERICH AREA
1017	TRILLIUM WOODS PROVINCIAL NATURE RESERVE
1018	TROTTERS LAKE
1019	TURKEY POINT
1044	VIOLET HILL SOUTH
1049	WALPOLE ISLAND
1050	WALSH DUNES
1053	WARTBURG ROAD
1064	WEST MONTROSE RIVER VALLEY
1065	WESTFIELD SWAMP
1066	WESTOVER
1071	WHEATLEY PROVINCIAL PARK
1072	WILDWOOD SILTS
1085	WINTHROP SITE

Fig. 6-24. Areas of Natural and Scientific Interest in Ecodistricts 7E-3 and 7E-5.

Note: Although the key characteristics of an ANSI generally are quite stable, outer boundaries can change and boundary verification or re-evaluation may be necessary from time to time. ANSI evaluations are viewed as open files to which new information can be added as it becomes available. Some ANSIs are currently being re-evaluated and/or have not yet been entered into the MNR's Natural Resources Values Information System (NRVIS) database. Please contact the appropriate MNR District Office if you have any questions about the location or status of ANSIs.

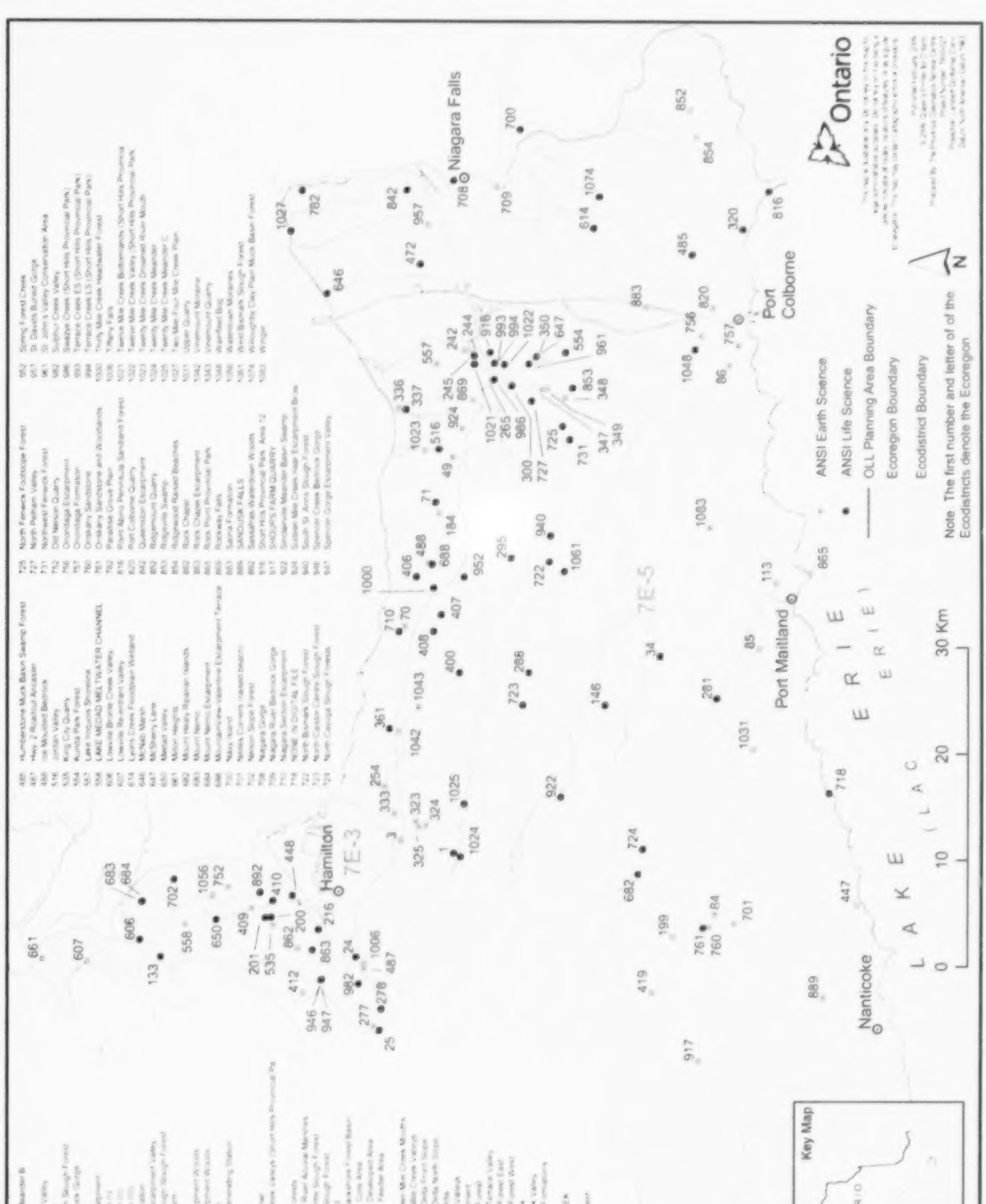
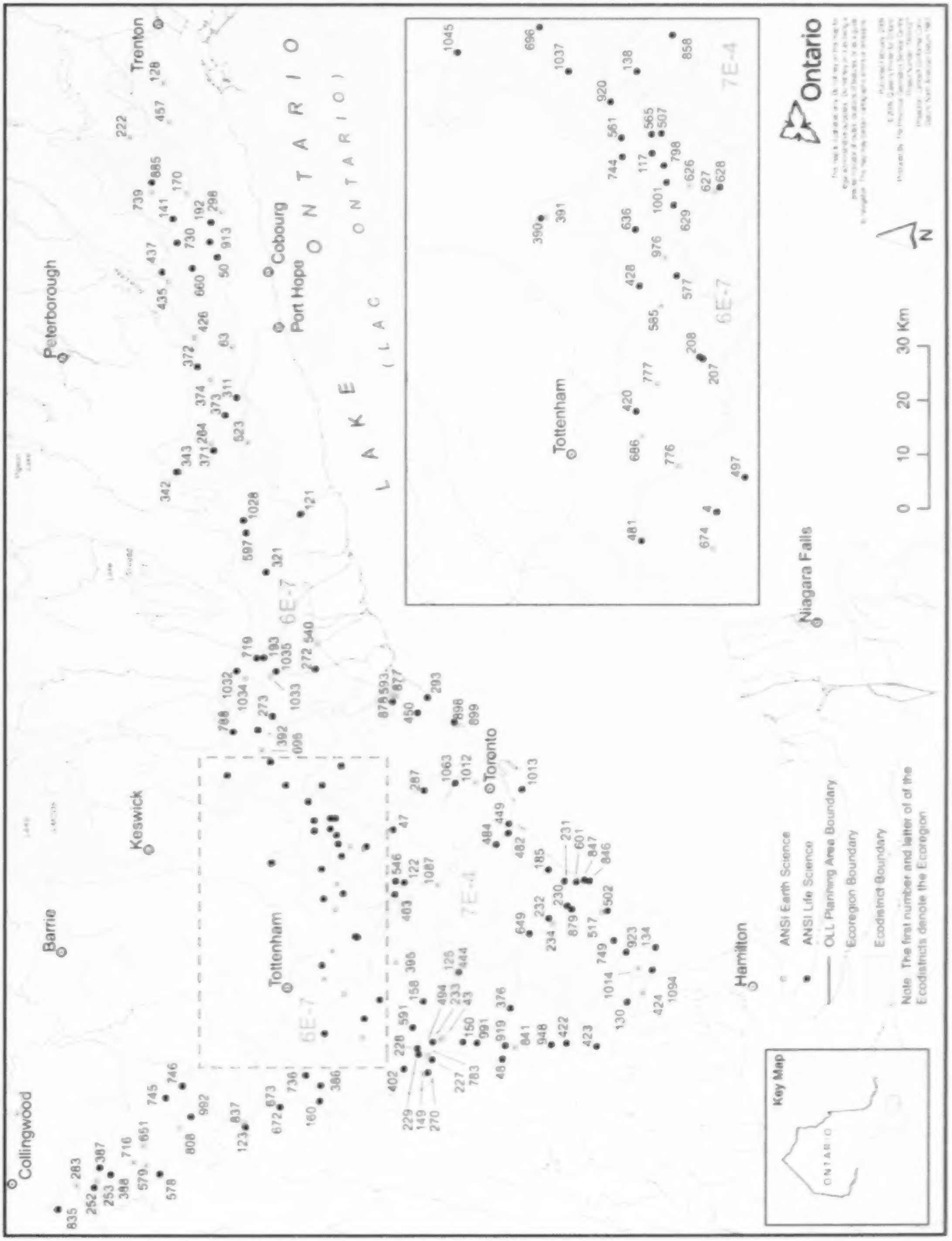

1 20 Mile Creek Meander B
3 Albion Falls
24 Ancaster Creek Valley
25 Ancaster Prairie
34 Attercliffe Station Slough Forest
49 Balls Falls Bedrock Gorge
70 Beamer's Falls
71 Beamsville Escarpment
84 Bertie Formation (I)
85 Bertie Formation (II)
86 Bertie Formation (III)
113 Bois Blanc Formation
133 Bronte Creek Escarpment Valley
146 Caistor-Canborough Slough Forest
184 Cave Springs Farm
199 Clanbrassil
200 Clappison Escarpment Woods
201 Clappison Escarpment Woods
216 Cootes Paradise
242 De Cew Falls Generating Station
244 DeCew Falls
245 DeCew Gorge
254 Devil's Punch Bowl
265 Dry Falls and Creek Valleys (Short Hills Provincial Pa
277 Dundas Valley
278 Dundas Valley Forests
281 Dunnville Grand River Alluvial Marshes
288 East Caistor Centre Slough Forest
295 East Smithville Slough Forest
300 Effingham Forest
320 Empire Beach Backshore Forest Basin
323 Eramosa Karst - Core Area
324 Eramosa Karst - Developed Area
325 Eramosa Karst - Feeder Area
333 Felker's Falls
336 Fifteen and Sixteen Mile Creek Mouths
337 Fifteen-Sixteen Mile Creek Valleys
347 Fonthill Kame - Delta Front Slope
348 Fonthill Kame - Delta North Slope
349 Fonthill Kame Delta
350 Fonthill Sandhill Valleys
361 Fruitland Escarpment
400 Grassie Slough Forest
406 Grimsby Beach Terrace Valley
407 Grimsby Centre Forest East
408 Grimsby Centre Forest West
409 Grindstone Creek
410 Grindstone Creek Valley
412 Guelph Amabel Formations
419 Hagersville
447 HEMLOCK CREEK
448 Hendrie Valley
472 Homer Escarpment
485 Humberstone Muck Basin Swamp Forest
487 Hwy. 2 Roadcut Ancaster
488 Ice Moulded Bedrock
516 Jordan Valley
535 King City Quarry
554 Kunda Park Forest
557 Lake Iroquois Shoreline
558 LAKE MEDAD MELTWATER CHANNEL
606 Lowville Bronte Creek Valley
607 Lowville Re-entrant Valley
614 Lyons Creek Floodplain Wetland
646 McNab Marsh
647 McSherry Lane
650 Medad Valley
661 Milton Heights
682 Mount Healy Riparian Islands
683 Mount Nemo
684 Mount Nemo Escarpment
688 Mountainview-Valentine Escarpment Terrace
700 Navy Island
701 Nelles Corners (raised beach)
702 Nelson Slope Forest
708 Niagara Gorge
709 Niagara River Bedrock Gorge
710 Niagara Section Escarpment
718 NONE IN DIGITAL FILE
722 North Bismark Slough Forest
723 North Caistor Centre Slough Forest
724 North Cayuga Slough Forests
725 North Fenwick Footslope Forest
727 North Pelham Valley
731 Northwest Fenwick Forest
752 Old Nelson Quarry
756 Onondaga Escarpment
757 Onondaga Formation
760 Oriskany Sandstone
761 Oriskany Sandstone and Woodlands
782 Paradise Grove Plain
816 Point Abino Peninsula Sandland Forest
820 Port Colborne Quarry
842 Queenston Escarpment
852 Ridgemount Quarry
853 Ridgeville Swamp
854 Ridgewood Raised Beaches
862 Rock Chapel
863 Rock Chapel Escarpment
865 Rock Point Provincial Park
869 Rockway Falls
883 Salina Formation
889 SANDUSK FALLS
892 Sassafras-Waterdown Woods
916 Short Hills Provincial Park, Area 12
917 SHOUPS FARM QUARRY
922 Sinclairville Meander Basin Swamp
924 Sixteen Mile Creek near Escarpment Brow
940 South St. Anns Slough Forest
946 Spencer Creek Bedrock Gorge
947 Spencer Gorge Escarpment Valley
952 Spring Forest Creek
957 St. Davids Buried Gorge
961 St. John's Valley Conservation Area
982 Sulphur Creek Valley
986 Swayze Creek (Short Hills Provincial Park)
993 Terrace Creek ES (Short Hills Provincial Park)
994 Terrace Creek LS (Short Hills Provincial Park)
1000 Thirty Mile Creek Headwater Forest
1006 Tiffany Falls
1021 Twelve Mile Creek Bottomlands (Short Hills Provincia
1022 Twelve Mile Creek Valley (Short Hills Provincial Park
1023 Twenty Mile Creek Drowned River Mouth
1024 Twenty Mile Creek Meander
1025 Twenty Mile Creek Meander C
1027 Two Mile-Four Mile Creek Plain
1031 Upper Quarry
1042 Vinemount Moraine
1043 Vinemount Quarry
1048 Wainfleet Bog
1056 Waterdown Moraines
1061 West Bismark Slough Forest
1074 Willoughby Clay Plain Muck Basin Forest
1083 Wingér
Hamilton
7E-3
7E-5
Niagara Falls
Port Maitland
Port Colborne
Nanticoke
LAKE ERIE
(LAC ÉRIÉ)
0
10
20
30 Km
Key Map
ONTARIO
ANSI Earth Science
ANSI Life Science
OLL Planning Area Boundary
Ecoregion Boundary
Ecodistrict Boundary
Note: The first number and letter of of the Ecodistricts denote the Ecoregion
N
Ontario

Fig. 6-25. Areas of Natural and Scientific Interest in Ecodistricts 7E-4 and 6E-7.

Note: Although the key characteristics of an ANSI generally are quite stable, outer boundaries can change and boundary verification or re-evaluation may be necessary from time to time. ANSI evaluations are viewed as open files to which new information can be added as it becomes available. Some ANSIs are currently being re-evaluated and/or have not yet been entered into the MNR's Natural Resources Values Information System (NRVIS) database. Please contact the appropriate MNR District Office if you have any questions about the location or status of ANSIs.



Areas of Natural and Scientific Interest in Ecodistricts 7E-4 and 6E-7 – Legend

4	ALBION HILLS FOREST
43	BADLAND TOPOGRAPHY OF QUEENSTON SHALES
47	BAKER'S WOODS
48	BALLINAFAD SWAMP AND BOG
50	BALTIMORE CREEK SWAMP
63	BATTERWOOD
117	BOND LAKE AND BOG
121	BOWMANVILLE VALLEY
122	BOYD CONSERVATION AREA AND ADJACENT LANDS
123	BOYNE VALLEY
125	BRAMPTON BURIED ESKER
128	BRIGHTON PROVINCIAL WILDLIFE AREA
130	BRITANNIA WETLANDS
134	BRONTE CREEK PROVINCIAL PARK NATURE RESERVE ZONE
138	BRUCE'S MILL CONSERVATION AREA
141	BURNLEY CREEK
149	CALEDON MELTWATER DEPOSITS
150	CALEDON MOUNTAIN SLOPE FOREST
158	CAMPBELL'S CROSS BOG
160	CANNINGS FALLS
170	CARMEL ESKER AND GRAVEL BEDFORMS
185	CAWTHRA WOODS
192	CENTRETON KETTLES
193	CHALK LAKE
207	COLD CREEK HEADWATERS
208	COLD CREEK HEADWATERS
222	CRAMAHE HILL BEACHES
227	CREDIT FORKS
228	CREDIT FORKS LOWLAND
229	CREDIT FORKS LOWLAND
230	CREDIT RIVER AT ERINDALE
231	CREDIT RIVER COASTAL MARSH
232	CREDIT RIVER GEORGIAN BAY FORMATION
233	CREDIT VALLEY QUARRY
234	CREDITVIEW WETLAND
252	DEVIL'S GLEN
253	DEVIL'S GLEN PROVINCIAL PARK AND PARK RESERVE
270	DUFFERIN LAKE
272	DUFFINS CREEK VALLEY
273	DUFFINS HEADWATERS
283	DUNTROON QUARRY
284	DURHAM COUNTY FOREST
287	EAST BRANCH OF DON RIVER
293	EAST POINT BLUFFS
298	EDDYSTONE DRUMLIN
311	ELIZABETHVILLE SWAMP
321	ENFIELD WETLANDS
342	FLEETWOOD CREEK HEADWATERS
343	FLEETWOOD KAMES
371	GANARASKA FOREST AND HEADWATERS
372	GANARASKA FOREST EAST
373	GANARASKA FOREST WEST OF CARMEL
374	GARDEN HILL OUTWASH
376	GEORGETOWN CREDIT VALLEY
386	GLEN CROSS UPLAND FOREST
387	GLEN HURON GORGE
388	GLEN HURON SWAMP AND ESCARPMENT
390	GLENVILLE HILLS
391	GLENVILLE HILLS KAMES
392	GOODWOOD BOGS
395	GOOSEVILLE MORAINE
402	GREEN LAKE
420	HALL-THOMPSON LAKE KETTLES
422	HALTON FOREST NORTH
423	HALTON FOREST SOUTH
424	HALTON TILL
426	HAMILTON STREAMLINED HILLS
428	HAPPY VALLEY
435	HARWOOD
437	HARWOOD PLAINS
444	HEART LAKE FOREST AND BOG
449	HIGH PARK OAK WOODLANDS
450	HIGHLAND CREEK SWAMP
457	HILTON PROPOSED BOUNDARY
481	HUMBER HEADWATERS
482	HUMBER RIVER COASTAL MARSH
483	HUMBER RIVER VALLEY – KLEINBURG
484	HUMBER VALLEY – LAMBTON
494	INGLEWOOD FOREST
497	INNIS-GIBSON LAKES KETTLES
502	IROQUOIS SHORELINE WOODS
507	JEFFERSON FOREST
517	JOSHUA CREEK POP-UP
523	KENDAL RECREATION AREA
540	KINSALE RAISED SHORELINE
546	KLEINBERG WOODLOTS
561	LAKE ST. GEORGE
565	LAKE WILCOX KETTLE WETLANDS AND UPLANDS
577	LASKAY LAKES
578	LAVENDER FALLS
579	LAVENDER FALLS/DUNEDIN PARK RESERVE
585	LINTON-KELLY LAKE CHANNELS
591	LITTLE CREDIT HEADWATERS
593	LITTLE ROUGE CREEK
597	LONG SAULT FOREST
601	LORNE PARK PRAIRIE
626	MAPLE SPUR
627	MAPLE SPUR CHANNEL
628	MAPLE UPLANDS & KETTLES
629	MAPLE UPLANDS & KETTLES
636	MARY-EATON HALL LAKES
649	MEADOWVALE STATION WOODS
651	MELTWATER CHANNEL EAST OF LAVENDER
660	MILLVALLEY HILLS FOREST
672	MONO CLIFFS
673	MONO CLIFFS PROVINCIAL PARK
674	MONO MILLS – CALEDON MELTWATER CHANNELS
686	MOUNT WOLFE
695	MUSSELMAN LAKE KETTLE COMPLEX
696	MUSSELMAN LAKE KETTLES
716	NOISY VALLEY NEAR DUNEDIN
719	NONQUON HEADWATERS
730	NORTHUMBERLAND CTY FOREST
736	NOTTAWASAGA RIVER NORTH
739	OAK HEIGHTS – SALT CREEK
744	OAK RIDGES BOG
745	OAK RIDGES NORTH
746	OAK RIDGES SOUTH SLOPE FORESTS
749	OAKVILLE-MILTON WETLANDS AND UPLANDS
776	PALGRAVE MORAINE
777	PALGRAVE MORAINE TOPOGRAPHY
783	PARIS MORAINE EAST OF CREDIT FORKS
788	PEFFERLAW-UXBRIDGE HEADWATERS
798	PHILIPS LAKE
808	PINE RIVER VALLEY
835	PRETTY RIVER VALLEY MORAINE
837	PRIMROSE-BOYNE VALLEY
841	QUARRY NORTHEAST OF LIMEHOUSE
846	RATTRAY COASTAL MARSH
847	RATTRAY COASTAL MARSH
858	ROBINSON CREEK HEADWATERS
877	ROUGE RIVER SECTION
878	ROUGE RIVER VALLEY
879	ROY IVORS WOODLOT
885	SALT CREEK
898	SCARBOROUGH BLUFFS
899	SCARBOROUGH BLUFFS
913	SHELTER VALLEY
919	SILVER CREEK VALLEY
920	SIMEON LAKES
923	SIXTEEN MILE CREEK
948	SPEYSIDE FOREST
976	STRANGE TILL PLAIN
991	TERRA COTTA FOREST
992	TERRA NOVA FORESTS
1001	THOMPSON LAKE
1012	TORONTO BRICKYARD
1013	TORONTO ISLANDS
1014	TRAFALGAR MORAINE
1028	TYRONE VALLEY
1032	UTICA BOGS
1033	UXBRIDGE FOREST KAMES
1034	UXBRIDGE LOBE GLACIAL RIVER DEPOSITS
1035	UXBRIDGE GLEN MAJOR FORESTS
1037	VANDORF KETTLES
1045	VIVIAN BOG
1063	WEST DON RIVER VALLEY
1087	WOODBRIDGE PLEISTOCENE CUT
1094	ZIMMERMAN VALLEY

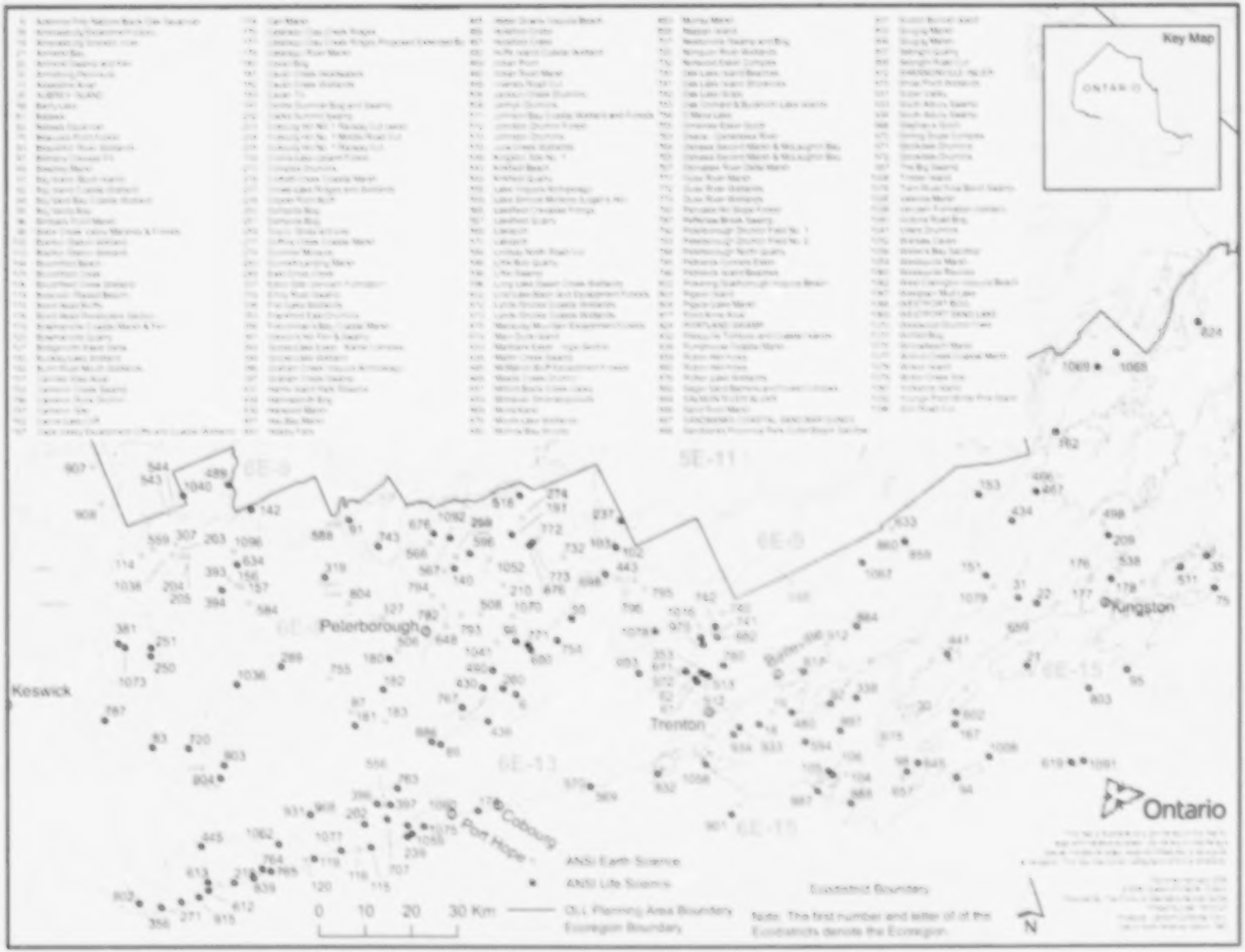


Fig. 6-26. Areas of Natural and Scientific Interest in Ecodistricts 6E-8, 6E-9, 6E-13, 6E-15, and 5E-11.

Fig. 6-27. Areas of Natural and Scientific Interest in Ecodistricts 6E-10, 6E-11, 6E-12, and 6E-16.

Note: Although the key characteristics of an ANSI generally are quite stable, outer boundaries can change and boundary verification or re-evaluation may be necessary from time to time. ANSI evaluations are viewed as open files to which new information can be added as it becomes available. Some ANSIs are currently being re-evaluated and/or have not yet been entered into the MNR's Natural Resources Values Information System (NRVIS) database. Please contact the appropriate MNR District Office if you have any questions about the location or status of ANSIs.

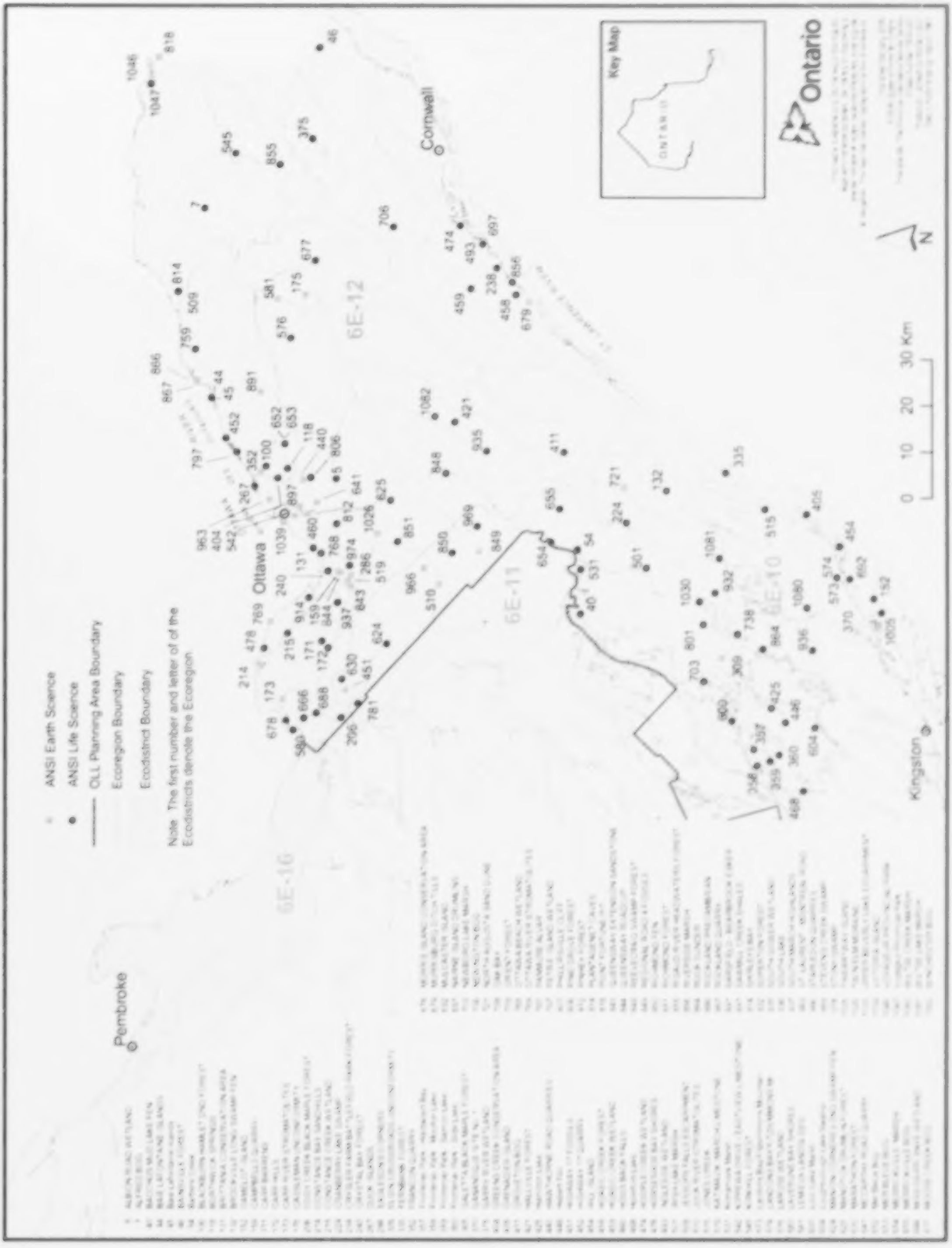


Fig. 6-28. Areas of Natural and Scientific Interest in Ecodistricts 6E-6 and 5E-7.

Note: Although the key characteristics of an ANSI generally are quite stable, outer boundaries can change and boundary verification or re-evaluation may be necessary from time to time. ANSI evaluations are viewed as open files to which new information can be added as it becomes available. Some ANSIs are currently being re-evaluated and/or have not yet been entered into the MNR's Natural Resources Values Information System (NRVIS) database. Please contact the appropriate MNR District Office if you have any questions about the location or status of ANSIs.

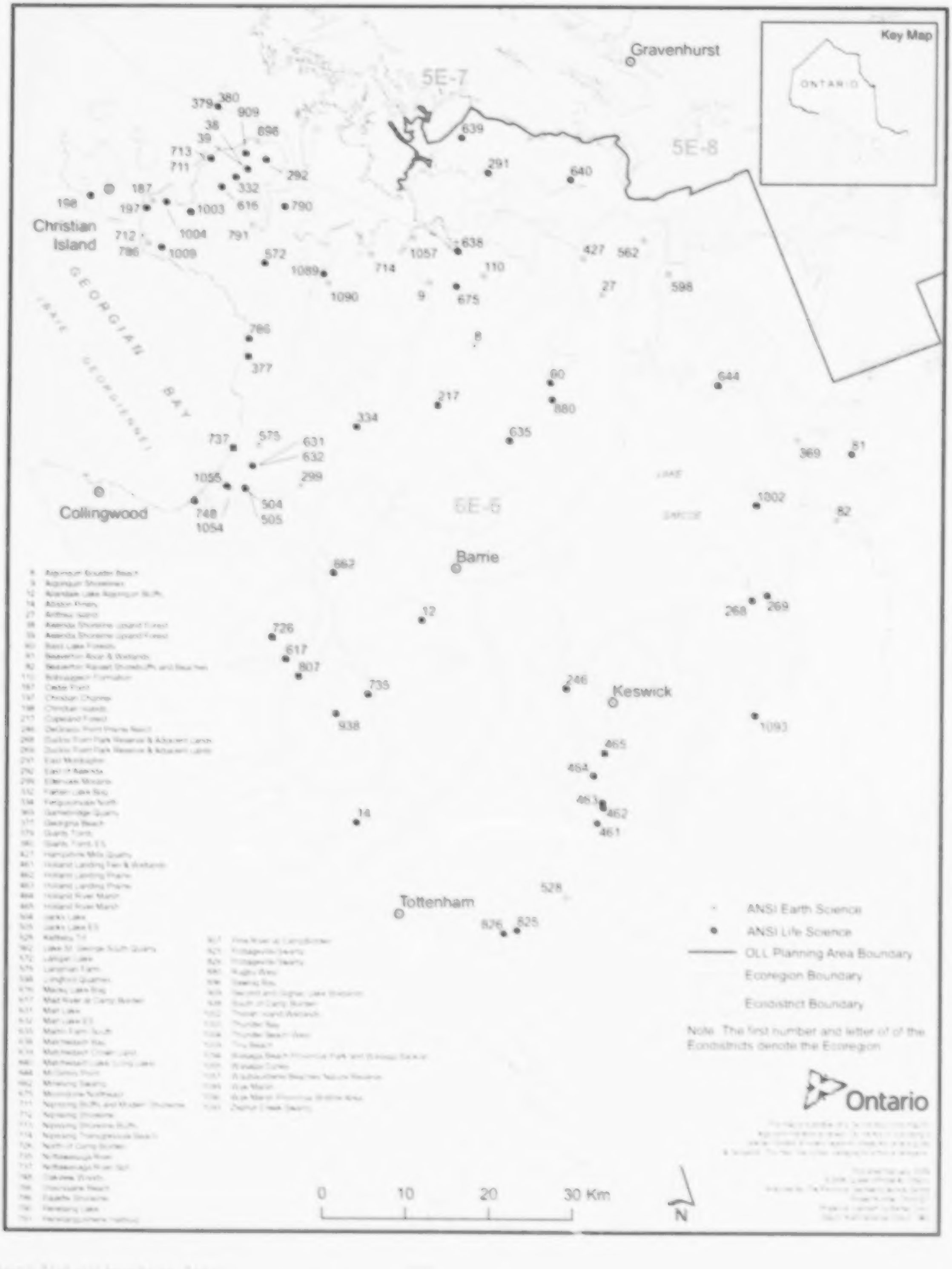


Fig. 6-29. Areas of Natural and Scientific Interest in Ecodistricts 6E-2, 6E-4, and 6E-5.

Note: Although the key characteristics of an ANSI generally are quite stable, outer boundaries can change and boundary verification or re-evaluation may be necessary from time to time. ANSI evaluations are viewed as open files to which new information can be added as it becomes available. Some ANSIs are currently being re-evaluated and/or have not yet been entered into the MNR's Natural Resources Values Information System (NRVIS) database. Please contact the appropriate MNR District Office if you have any questions about the location or status of ANSIs.

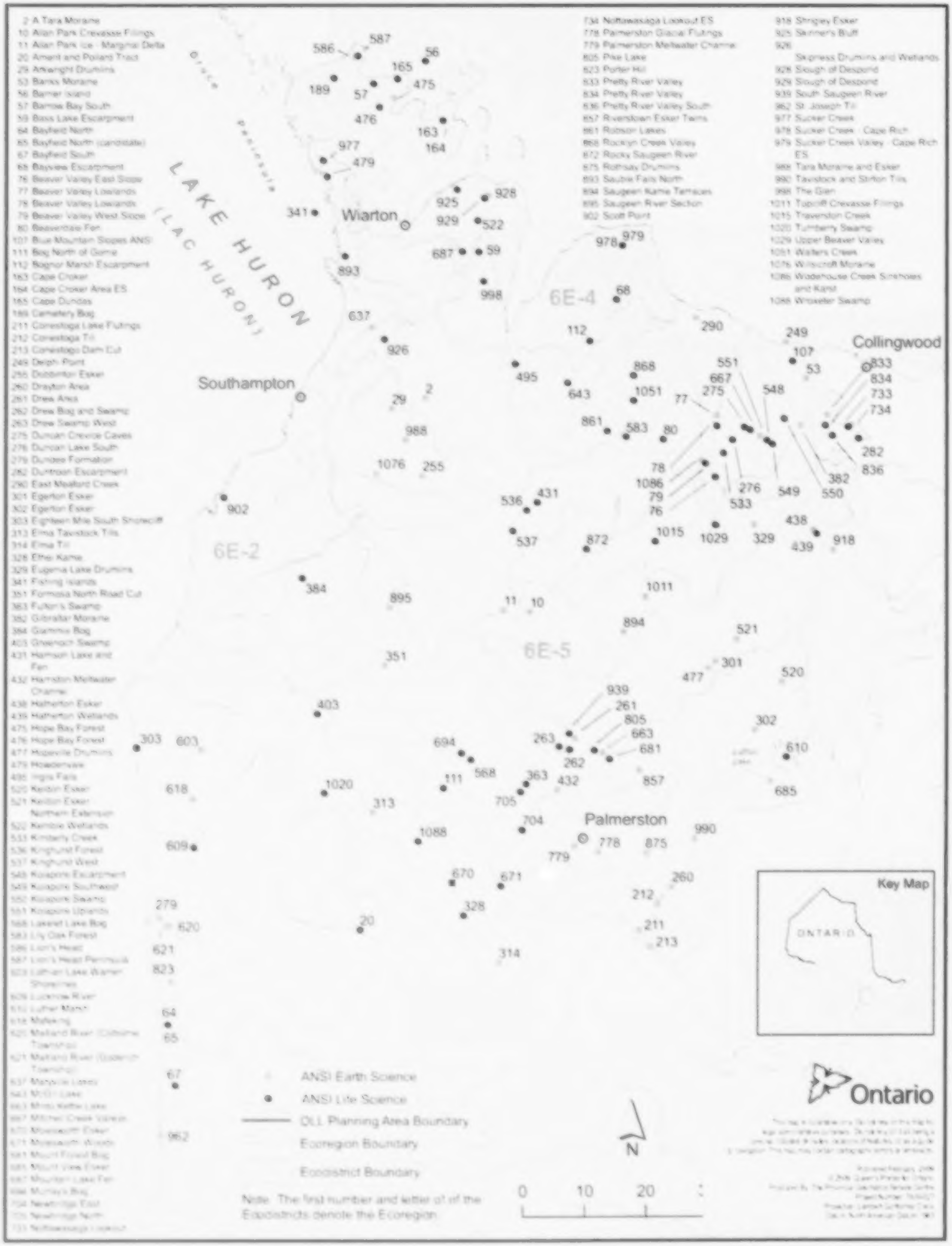


Fig. 6-30. Areas of Natural and Scientific Interest in Ecodistricts 6E-14 and 6E-17.

Note: Although the key characteristics of an ANSI generally are quite stable, outer boundaries can change and boundary verification or re-evaluation may be necessary from time to time. ANSI evaluations are viewed as open files to which new information can be added as it becomes available. Some ANSIs are currently being re-evaluated and/or have not yet been entered into the MNR's Natural Resources Values Information System (NRVIS) database. Please contact the appropriate MNR District Office if you have any questions about the location or status of ANSIs.

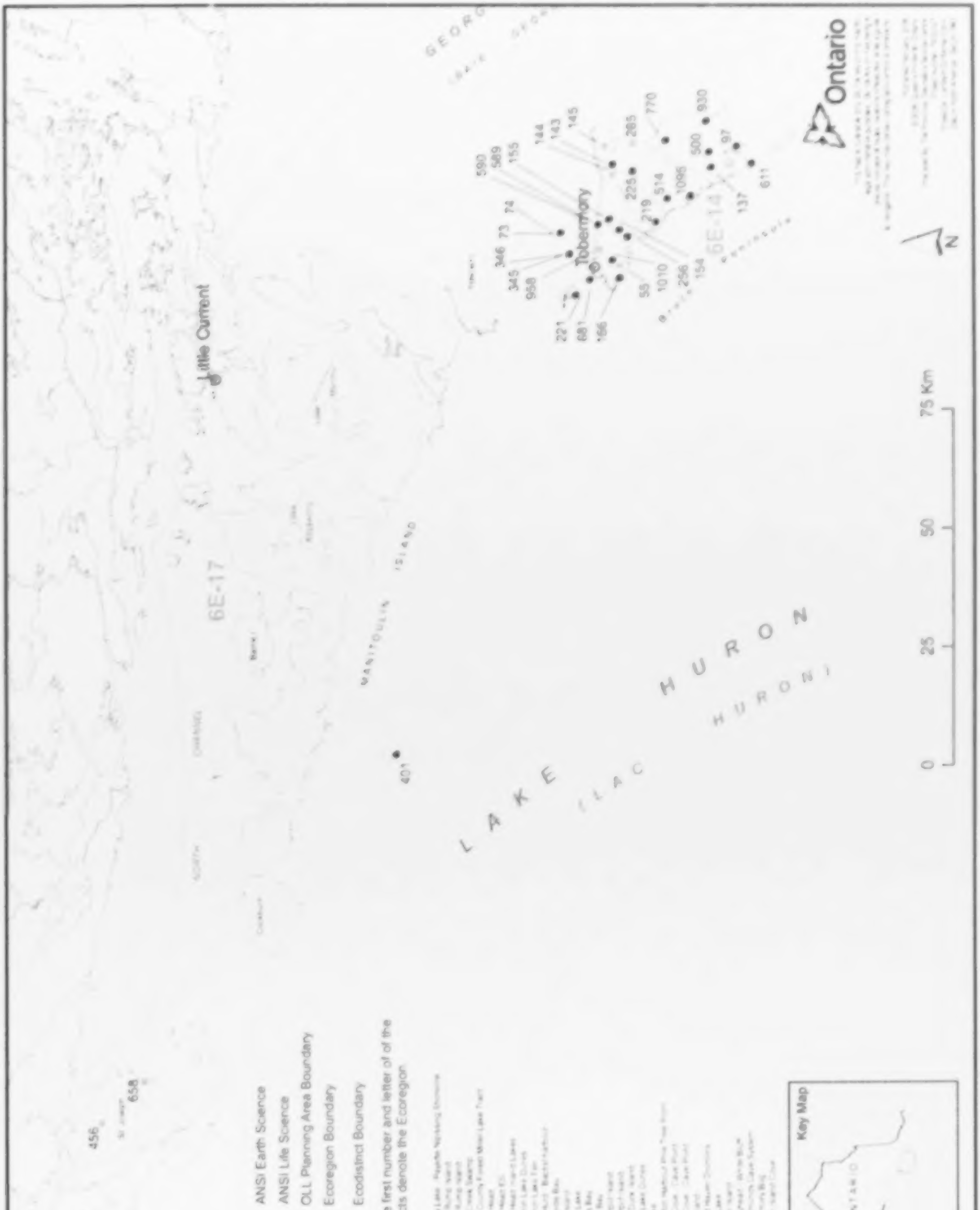


Fig. 6-31. Areas of Natural and Scientific Interest in Ecodistricts 2E-1, 2E-2, 2E-4, 1E-2, 1E-3, and 0E-1.

Note that the number and distribution of ANSIs in the 'Far North' is based in part on sampling techniques and intensity.

Note: Although the key characteristics of an ANSI generally are quite stable, outer boundaries can change and boundary verification or re-evaluation may be necessary from time to time. ANSI evaluations are viewed as open files to which new information can be added as it becomes available. Some ANSIs are currently being re-evaluated and/or have not yet been entered into the MNR's Natural Resources Values Information System (NRVIS) database. Please contact the appropriate MNR District Office if you have any questions about the location or status of ANSIs.

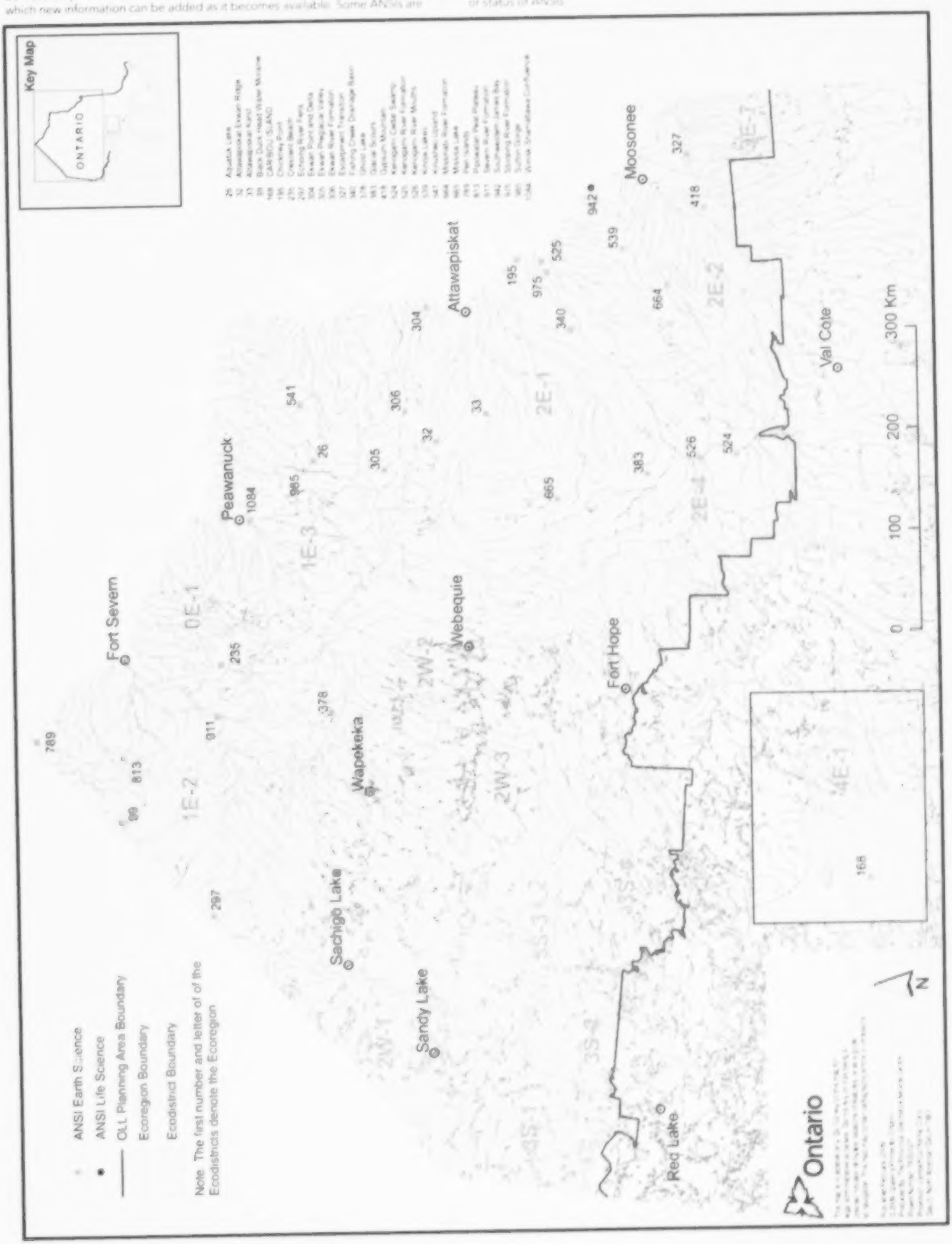
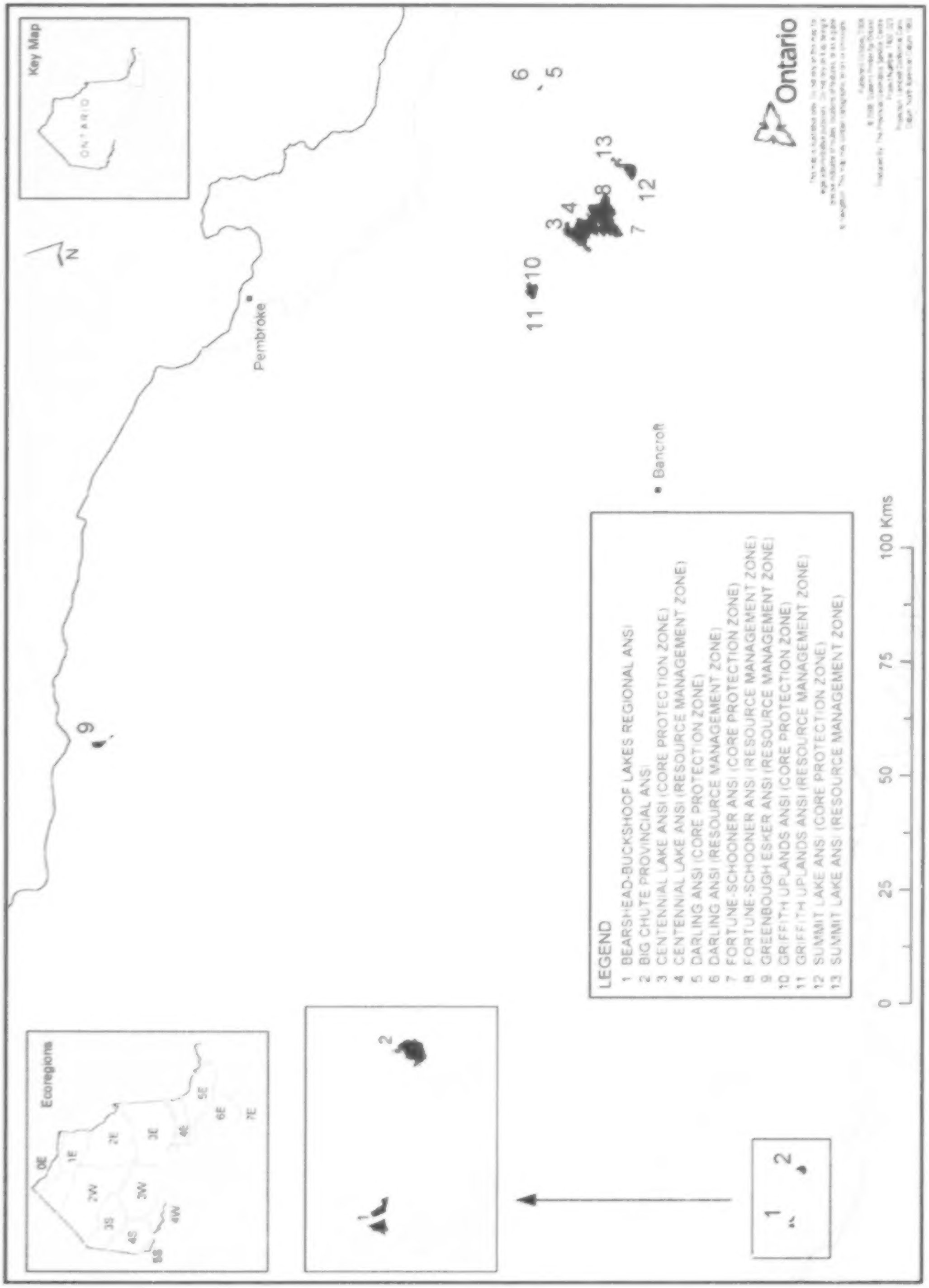


Fig. 6-32. Eight Crown land areas of Natural and Scientific Interest in the Ontario Living Legacy Planning Area in relation to Ecoregion boundaries.

Note: This map depicts 13 zones in the eight areas.


Ecoregions
0E
1E
2W
3S
2E
4S
3W
5S
3E
4W
4E
5E
6E
7E
Key Map
ONTARIO
N
9
Pembroke
11
10
3
4
8
7
13
12
6
5
Bancroft
1
2
LEGEND
1 BEARSHEAD-BUCKSHOOF LAKES REGIONAL ANSI
2 BIG CHUTE PROVINCIAL ANSI
3 CENTENNIAL LAKE ANSI (CORE PROTECTION ZONE)
4 CENTENNIAL LAKE ANSI (RESOURCE MANAGEMENT ZONE)
5 DARLING ANSI (CORE PROTECTION ZONE)
6 DARLING ANSI (RESOURCE MANAGEMENT ZONE)
7 FORTUNE-SCHOONER ANSI (CORE PROTECTION ZONE)
8 FORTUNE-SCHOONER ANSI (RESOURCE MANAGEMENT ZONE)
9 GREENBOUGH ESKER ANSI (RESOURCE MANAGEMENT ZONE)
10 GRIFFITH UPLANDS ANSI (CORE PROTECTION ZONE)
11 GRIFFITH UPLANDS ANSI (RESOURCE MANAGEMENT ZONE)
12 SUMMIT LAKE ANSI (CORE PROTECTION ZONE)
13 SUMMIT LAKE ANSI (RESOURCE MANAGEMENT ZONE)
0
25
50
75
100 Kms
Ontario

Five selection criteria, which are similar for both earth and life science ANSIs, are used to evaluate candidate sites:

1. **Representation:** Represents geological themes or landform-vegetation features of an Ecodistrict.
2. **Condition:** Existing and past land uses are examined to assess the degree of human-induced disturbances.
3. **Diversity:** Diversity is measured by assessing the number of high quality, representative features within the site.
4. **Other Ecological Considerations:** Other ecological forces and factors are considered, including but not limited to ecological and hydrological function, connectivity, size, shape, and proximity to other areas.
5. **Special Features:** Special features can include populations of species at risk, special habitats, unusual geological or life science attributes, and educational and scientific values (MNR, 2008).

Using the five criteria, ANSIs are assessed and graded as provincially, regionally, or locally significant:

- **Provincially Significant ANSIs:** Provincially significant life science ANSIs encompass the best examples of the landform/vegetation features of an Ecodistrict and earth science ANSIs contain the best examples of earth science features and processes for an environmental theme.
- **Regionally Significant ANSIs:** The regionally significant areas are the *"next best natural areas"* (MNR, 2008).
- **Locally Significant ANSIs:** These sites encompass representative vegetation-landform features that meet many of the evaluation criteria, but are adequately represented somewhere else (MNR, 2008).

The MNR uses an identification and confirmation procedure to ensure:

- Consistency of approach across Ontario when identifying new Areas of Natural and Scientific Interest, modifying or deleting existing boundaries, and confirming the status and boundaries.
- That timely and appropriate contact with affected landowners is undertaken.
- That roles and responsibilities within the Ministry of Natural Resources with respect to issues related to Areas of Natural and Scientific Interest are clearly defined.

The identification and confirmation procedure is completed through a seven-step evaluation, notification, and communication process:

Step 1: Identify Priorities and Complete Work Planning:

- Identify roles.
- Complete a priority list for ANSI work.
- Define the work plan.

Step 2: Plan for ANSI Fieldwork:

- Assemble all relevant information.
- Where appropriate, develop a fieldwork plan, including potential issues.

Step 3: Landowner/Municipality/District Notice:

- Where appropriate, use information kits describing the program.
- On private lands, contact affected landowners and inform municipalities and agencies.
- On Crown lands, inform the managing authorities.
- On public lands not managed by MNR, inform the managing authorities.

Step 4: Fieldwork and Data Analysis:

- Complete the fieldwork.
- Describe and evaluate site features and boundaries.
- If fieldwork is not possible or incomplete, document alternative methods of collecting information.

Step 5: Report Writing:

- Complete draft report and forward it to the ANSI Review Committee.
- MNR District Manager(s) are advised of the recommendations in the draft ANSI report.

Step 6: Report Review by ANSI Review Committee:

- ANSI Review Committee completes an additional technical review.
- The draft report is revised as required.
- A final draft of the ANSI report is approved by the Review Committee.

Step 7: ANSI Report Approvals:

- ANSI report approved by the MNR District Manager(s) and the Ontario Parks Planning and Research Section Manager or, if required, the managers request that additional work be completed and reflected in a revised draft ANSI report.
- Approval or rejection of the report is communicated.
- The appropriate ANSI file in MNR's Natural Resource Values Information System is updated to reflect the decisions (MNR, 2008).

Management Objectives and/or Guidelines

In cases where Areas of Natural and Scientific Interest occur on private lands and land owned by other government agencies, the MNR works to ensure that landowners are aware of the significant features on their properties and to solicit cooperation in protecting them. The MNR provides natural area information to municipalities (e.g., for official planning) and private landowners wishing to conserve their provincially significant features or participate in the Conservation Land Tax Incentive Program (See Section 8.6 on page 309). The Ministry of Natural Resources also provides information to other agencies, such as the Ministry of Transportation and municipalities, because about half of the earth science Areas of Natural and Scientific Interest are located in rock outcrops along roadways.

Zoning and management guidelines are used to enhance the protection of earth and life science values:

Life Science Area of Natural and Scientific Interest

Strictly Protected Life Science Core Zone:

- Protected lands and waters designated to represent natural ecosystems, communities, and species with a high degree of natural integrity, significance, and sensitivity where natural processes prevail without human intervention.
- Serve as sanctuaries and benchmarks to monitor the natural changes in ecosystems and the effect of management activities on adjacent areas.

Managed Life Science Core Zone:

- Areas containing natural aquatic or terrestrial ecosystems, communities, and species where natural processes may be simulated and managed to maintain a significant or sensitive community or species.
- Managed areas that provide opportunities to maintain and study, under controlled conditions, near natural communities and species that might otherwise be lost through natural succession or other kinds of environmental change.

Buffer Zones:

- Lands and waters usually containing natural ecosystems, communities, and species designated to shield Strictly Protected Life Science and Managed Life Science Core Zones from incompatible uses of adjacent and surrounding lands.

Resource Management Zone:

- Lands and waters designated to accommodate specific actions not necessarily contributing to the enhancement of the Area of Natural and Scientific Interest or activities for particular resources such as wildlife, fisheries, and mineral resources, when these activities are not detrimental to features contained in the aforementioned zones.

Access Zone:

- Areas where development and access facilities are located (only if needed). The Access Zone is usually located within the Resource Management Zone.

Earth Science Area of Natural and Scientific Interest

Strictly Prohibited Earth Science Core Zone:

- Protected lands and waters with a high degree of natural integrity, significance, or sensitivity where natural processes prevail without human intervention.
- Serve as benchmarks to monitor natural changes and the effect of management activities on adjacent areas.

Managed Earth Science Core Zone:

- Areas containing significant or sensitive geological features where environmental manipulation may be applied to maintain a particular feature or condition.
- Managed areas that provide opportunities to maintain and study features which might otherwise be lost through natural processes and conversely to manage processes to maintain desired features.

Image by P.A. Gray

Buffer Zone:

- Lands and waters designated to shield Strictly Protected and Managed Earth Science Core Zones from incompatible uses of adjacent and surrounding lands.

Resource Management Zone:

- Lands and waters designated to accommodate specific actions, not necessarily contributing to the enhancement of the Area of Natural and Scientific Interest or activities for particular resources such as wildlife, fisheries, mineral resources, where these activities are not detrimental to features contained in the aforementioned zones.

Access Zone:

- Areas where development and access facilities are located (only if needed). The Access Zone is usually located within the Resource Management Zone (MNR, 1998b).

The Degree of Protection for Areas of Natural and Scientific Interest and the Corresponding IUCN Protected Area Management Category: A Preliminary Assessment

Some Areas of Natural and Scientific Interest may qualify as 'fully protected' under the auspices of the *Provincial Policy Statement* or through municipal official plans, land trusts, legal agreements, and other protection mechanisms. 'Fully protected' ANSIs could qualify as IUCN Category Ia or III protected areas. Given the variety of protection mechanisms used (including the management prescriptions described in Table 6-13 for the eight ANSIs in the Ontario Living Legacy planning area), a site by site assessment would be required to determine the exact status of each ANSI.

Key Contact(s)

Natural Heritage, Lands and Protected Spaces Branch
Ministry of Natural Resources
300 Water Street, 6th Floor
Peterborough, Ontario
K9J 8M5
Telephone: 705-755-1729
Fax: 705-755-1701

Table 6-13. A summary of management prescriptions in the context of the IUCN classification system for the eight Crown land areas of Natural and Scientific Interest within the Ontario Living Legacy planning area.[1]

	ANSI												
Protection Criteria	Summit Lake (Core Management Zone)	Summit Lake (Resource Protection Zone)	Fortune-Schooner (Core Protection Zone)	Fortune-Schooner (Resource Management Zone)	Griffith Uplands (Core Protection Zone)	Griffith Uplands (Resource Management Zone)	Centennial Lake (Core Protection Zone)	Centennial Lake (Resource Management Zone)	Darling (Core Protection Zone)	Darling (Resource Management Zone)	Greenbough Esker (Resource Management Zone)	Bearshead Buckshoot Lake	Big Chute
Protection Objectives													
Primary and explicit	Yes	No	Yes	No	Yes	No	Yes	No	No	No	No	No	Yes
Secondary or absent, but permits conservation	No	Yes	No	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes	No
Strength of Commitment													
Legislation and regulation	No	No	No	No	No	No	No	No	No	No	No	No	No
Policy, easements, long- and short-term agreements, strategies, plans, guidelines	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Permanence of Commitment													
In perpetuity	?	?	?	?	?	?	?	?	?	?	?	?	?
Not designated in perpetuity. Specific pre-determined periods (e.g., 10-20 years)	No	No	No	No	No	No	No	No	No	No	No	No	No
Quality of Protection													
Aggregate extraction	No	No	No	No	No	No	No	No	No	No	No*	Yes	No
Bait fishing	Maybe*	Maybe*	Maybe*	Maybe*	Maybe*	Maybe*	Maybe*	Maybe*	Maybe*	Maybe**	Maybe*	NA[2]	Yes
Commercial fishing	Maybe*	Maybe*	Maybe*	Maybe*	Maybe*	Maybe*	Maybe*	Maybe*	Maybe*	Maybe**	Maybe*	NA	Yes
Commercial fur harvesting – Existing trappers cabins permitted	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA	Yes
Commercial fur harvesting – New trappers cabins permitted	No	No	No	No	No	No	No	No	No	No	?	NA	?
Commercial hydro development	No**	No**	No**	No**	No**	No**	No**	No**	No**	No**	No**	NA	?
Commercial timber harvest	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	Yes	Yes	No
Commercial tourism – Existing	No**	No**	No**	No**	No**	No**	No**	No**	No**	No**	No**	NA	?
Commercial tourism – New	No**	No**	No**	No**	No**	No**	No**	No**	No**	No**	No**	NA	?
Mineral exploration and development	No	Maybe +	No	Maybe +	No	No	No	Maybe +	Maybe +	Maybe +	Maybe +	NA	No
Peat extraction	No	No	No	No	No	No	No	No	No	No	No	NA	?
Wild rice harvesting	Maybe*	Maybe*	Maybe*	Maybe*	Maybe*	Maybe*	Maybe**	Maybe*	Maybe*	Maybe*	Maybe**	NA	?
Crown land disposition – Existing seasonal recreation camps	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA	No

Continued on 230

Table 6-13. *continued from 229*

Protection Criteria	ANSI Summit Lake (Core Management Zone)	Summit Lake (Resource Protection Zone)	Fortune-Schooner (Core Protection Zone)	Fortune-Schooner (Resource Management Zone)	Griffith Uplands (Core Protection Zone)	Griffith Uplands (Resource Management Zone)	Centennial Lake (Core Protection Zone)	Centennial Lake (Resource Management Zone)	Darling (Core Protection Zone)	Darling (Resource Management Zone)	Greenbough Esker (Resource Management Zone)	Bearhead Buckshoot Lake	Big Chute
Quality of Protection													
Crown land disposition – New seasonal recreation camps	No	No	No	No	No	No	No	No	No	No	No	NA	No
Crown land disposition – Cottages	No	No	No	No	No	No	No	No	No	No	NA	NA	?
Road development and maintenance – Existing	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA	Yes
Road development and maintenance – New	No	Maybe	No	Maybe	No	Maybe	No	Maybe	No	Maybe	Maybe	NA	No
Trail development – Existing	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA	NA	?
Trail development – New	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	NA	NA	?
Crown land recreation	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA	Yes
Hunting	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA	Yes
Public road use – Existing	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA	Yes
Public road use – New	No	No	No	No	No	No	No	No	No	No	No	NA	No
Trail use – Existing – Snowmobiles and all terrain vehicles on existing designated trails	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA	NA	?
Trail use – New	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	NA	NA	?
Sport fishing	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	NA	Yes
Timing of Protection													
Year-round	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Periods of the year	No	No	No	No	No	No	No	No	No	No	No	No	No
Fully Protected (FP) or Partially Protected (PP)	PP	PP	PP	PP	PP	PP	PP	PP	PP	PP	PP	PP	PP
IUCN Class	None	None	None	None	None	None	None	None	None	None	None	None	None

[1] These interpretations are based on Crown Land Use Atlas Policy Reports found in MNR (2006d).

[2] NA = Not Applicable.

[*] No new gravel pits or quaries.

[*] This activity is not addressed in the Land Use Plan but generally would be considered subject to a test of 'compatibility' through MNR planning and approval policies and procedures.

[**] This activity is not addressed in the Land Use Plan but generally is not considered appropriate in a core protection zone.

[*] Surface mining, new gravel pits, and quarries are not permitted. Proposals for subsurface mining will be considered.

6.8 Wildlife Management Areas, Crown Game Preserves, and Fish Sanctuaries

Introduction

A variety of habitat and species management designations are used in Ontario to protect and manage fish and wildlife assets (Table 6-14). Designations include:

- Wildlife Management Areas, which are variously called Provincial Wildlife Areas, Wildlife Management Areas, Resource Management Areas, Waterfowl Management Areas, Wildlife Extension Landowner Agreement Areas (WELOAA) and Provincial Fishing Areas (Table 6-15, Fig. 6-33) (MNR, 1986b, 2004b, 2007b).
- Crown Game Preserves (Table 6-16, Fig. 6-34).
- Fish Sanctuaries.

These designations have been used to achieve one or more purposes, such as to:

- Protect fish and/or wildlife habitat.
- Protect fish and/or wildlife species.
- Provide hunting and fishing opportunities.
- Provide education and recreation opportunities that focus on fish and wildlife assets.
- Permit the use of other natural resources if the stated goal is not adversely impacted.

Image by P. Kor

Table 6-14. Fish and wildlife management areas in Ontario.

Mechanism	Number	Size (ha)
Wildlife Mangement Areas	35	39,208
Crown Game Preserves	15	809,122
Fish Sanctuaries	597	–
Minimum Total		**848,330**

Source: Land Information Ontario (2008), MNR (1976b, 1986b, 2004b), Pileggi and Gray (1991).

Wildlife Management Areas

The Ontario Government's program to establish Wildlife Management Areas (not to be confused with MNR's administrative Wildlife Management Unit system) dates to 1962 when Public Hunting Areas were identified to deal with the dwindling supply of hunting opportunities in southern Ontario (Creighton, 1969; MNR, 2004b). At that time, the concept was to protect significant remnants of wild country in public ownership for quality hunting through intensive management (MNR, 1976a, b). By 1969, there were 19 Wildlife Management Areas encompassing 13,365 ha. In 1976, 40 areas with various designations were listed in an MNR brochure entitled *Wildlife Management Areas in Ontario* (MNR, 1976a, b). The brochure was reprinted in 1986 with 41 areas listed (MNR, 1986b). Many of these areas were identified in the 1983 District Land Use Guidelines, are still recognized today, and are provided varying degrees of management. In addition, some of these areas are listed in the *Fish and Wildlife Conservation Act* (Statutes of Ontario, 1997) as 'Special Hunting Areas.' Thirty five areas (encompassing 39,208 ha) are listed in this report based on various MNR sources (MNR, 1986b, 2006e, and 2007b) (Table 6-15).

Table 6-15. Wildlife Management Areas in Ontario.

	WMA	Designation	Area (ha)	Source
1.	Aylmer	Wildlife Management Area	184	MNR 1976b, 1986b, 2004b, 2007b
2.	Beverly Swamp	Wildlife Extension Landowner Agreement Area	430	MNR 1976b, 1986b, 2007b
3.	Binbrook	Wildlife Extension Landowner Agreement Area	358	MNR 1976b, 1986b, 2007b
4.	Brighton	Provincial Wildlife Area	392	MNR 1976b, 1986b, 2004b, 2007b
5.	Calton Swamp	Wildlife Management Area	43	MNR 2004b, 2006e
6.	Camden Lake	Wildlife Management Area	1,281	MNR 1976b, 1986b, 2004b, 2007b
7.	Copeland Forest	Resource Management Area	1,788	MNR 1986b, 2004b, 2007b
8.	Darlington	Provincial Park	111	MNR 1976b, 1986b, 2007b
9.	Fingal	Provincial Wildlife Area	293	MNR 1976b, 1986b, 2004b, 2007b
10.	Gananoque	Provincial Wildlife Area	580	MNR 1976b, 1986b, 2004b, 2007b
11.	Hilliardton Marsh	Provincial Wildlife Area	725	L. Ferguson, pers. com., MNR 2007b
12.	Holiday Beach	Waterfowl Management Area	101	MNR 1976b, 1986b, 2004b
13.	Holland Marsh	Provincial Wildlife Area	573	MNR 1976b, 1986b, 2004b, 2007b
14.	Hoople Creek	Provincial Wildlife Area	105	MNR 1976b, 1986b, 2004b
15.	Hullett	Wildlife Management Area	2,150	MNR 1976b, 1986b, 2004b, 2007b
16.	Lake St. Lawrence	Wildlife Extension Landowner Agreement Area	6,070	MNR 1976b, 1986b, 2004b, 2007b
17.	Long Point	Wildlife Management Area	500	MNR 1976b, 1986b, 2004b, 2007b
18.	Luther Marsh	Wildlife Management Area	5,666	MNR 1976b, 1986b, 2004b, 2007b
19.	Matchedash Bay	Provincial Wildlife Area	1,046	MNR 1976b, 1986b, 2004b, 2007b
20.	Marl Lake	Provincial Wildlife Area	176	MNR 2004b
21.	Mountain	Provincial Wildlife Area	1,457	MNR 1976b, 1986b, 2004b, 2007b
22.	Mud Lake	Conservation Authority Property	114	MNR 1976b, 1986b, 2007b
23.	Nonquon	Provincial Wildlife Area	1,120	MNR 1976b, 1986b, 2004b, 2007b
24.	Orangeville Reservoir (now Island Lake)	Wildlife Extension Landowner Agreement Area	182	MNR 1976b, 1986b, 2007b
25.	Pine River	Provincial Fishing Area	109	MNR 2004b, 2007b
26.	Point Petre	Provincial Wildlife Area	1,452	MNR 1976b, 1986b, 2004b, 2007b
27.	Presqu'ile	Provincial Park	931	MNR 1976b, 1986b, 2007b
28.	Rankin	Resource Management Area	3,800	MNR 1976b, 1986b, 2004b, 2007b
29.	Rondeau	Provincial Park	4,654	MNR 1976b, 1986b, 2004b, 2007b
30.	Scugog Island	Wildlife Management Area	182	MNR 1976b, 1986b, 2004b, 2007b
31.	Stag Island	Wildlife Management Area	17	MNR 1976b, 1986b, 2004b, 2007b
32.	Tiny Marsh	Provincial Wildlife Area	976	MNR 1976b, 1986b, 2004b, 2007b
33.	Valens	Wildlife Extension Landowner Agreement Area	300	MNR 1976b, 1986b, 2007b
34.	Willoughby Swamp	Wildlife Extension Landowner Agreement Area	232	MNR 1976b, 1986b, 2007b
35.	Wye Marsh	Provinical Wildlife Area	1,110	MNR 1976b, 1986b, 2004b, 2007b
		Total	39,208	

Table 6-16. Crown Game Preserves in Ontario.

Crown Game Preserves	Area (ha)
1. Brigden	2,472
2. Chapleau	722,120
3. Conestogo	450
4. Conroy Marsh	680
5. Dumfries	330
6. Geikie Island	4,670
7. Himsworth	2,480
8. Miner	880
9. Nipissing	55,710
10. Nopiming	630
11. Pembroke	110
12. Peterborough	15,260
13. Puslinch	430
14. Shirley's Bay	1,690
15. Yarmouth	1,210
Total	809,122

Source: Pileggi and Gray (1991).

Crown Game Preserves

The Crown Game Preserve system was established in 1917 by the Ontario Fish and Game Department in response to a perceived need to manage wildlife by delineating and protecting what were thought to be 'key' wildlife populations. It is possible that the wildlife protection role of the Crown Game Preserves was derived from early experience with Forest Reserves and Provincial Parks as a means of maintaining and/or restoring wildlife populations (Pileggi and Gray, 1991).

In total, 121 Crown Game Preserves, covering 2,470,000 ha were established in Ontario during the first half of the 20th Century (OGFD, 1940). Since 1960, most of these areas have been rescinded. Currently, 15 Crown Game Preserves encompassing 809,122 ha remain (Table 6-16) (Pileggi and Gray, 1991). All but four of the Preserves (these four comprise about 97% or 785,000 ha of the total area of Crown Game Preserves in the province) are located in southern Ontario (Fig. 6-34). Decisions to rescind or retain Crown Game Preserves were based on:

- Evolving land management strategies.
- Knowledge of the biological importance of the area.
- The existing condition of the Crown Game Preserve.
- Knowledge of, and access to, more effective alternative methods to manage these areas (e.g., registered traplines and modern management and licencing techniques for White-tailed Deer [*Odocoileus virginianus*] and Moose [*Alces alces*]) (Pileggi and Gray, 1991).

Some Crown Game Preserves were eventually included within the boundaries of Provincial Parks (e.g., Sleeping Giant Provincial Park), some were deemed biologically insignificant (e.g., Mulmur Crown Game Preserve), while others were consumed by urban development (e.g., Darlington Crown Game Preserve) (Pileggi and Gray, 1991).

Fish Sanctuaries

Around 1892, new fish management laws were written to protect and regulate commercial fisheries, and angling seasons were established for certain game fish (Lambert and Pross, 1967). Sanctuaries or "closed waters" were established by Order-In-Council as early as 1927 (Legislative Assembly of Ontario, 1931:52). The "*sanctuary principle consists in having an area completely removed from public or private use*" (Legislative Assembly of Ontario, 1930:39). Some waters were closed indefinitely while others were closed for a defined period of time to act as:

- Sources of replenishment for immediately adjacent waters.
- Areas where spawning fish are protected.
- Scientific research sites (Legislative Assembly of Ontario, 1932:46).

Fish Sanctuaries are used to prevent fishing of any kind from occurring in specified waterbodies or parts of waterbodies for all or certain times of the year (Statutes of Ontario, 1997). Changes to the distribution of Fish Sanctuaries are described in the Ontario Fisheries Regulations (e.g., Government of Ontario, 2008b; MNR 2005d). The 2008-2009 Ontario Fisheries Regulations lists and describes each Fish Sanctuary. For example, of 774 Fish Sanctuaries in 2008, 114 were in place throughout the year and 660 were in place for part of the year (B. Tomlinson, personal communication). No estimate of the area encompassed by Fish Sanctuaries is available at the current time.

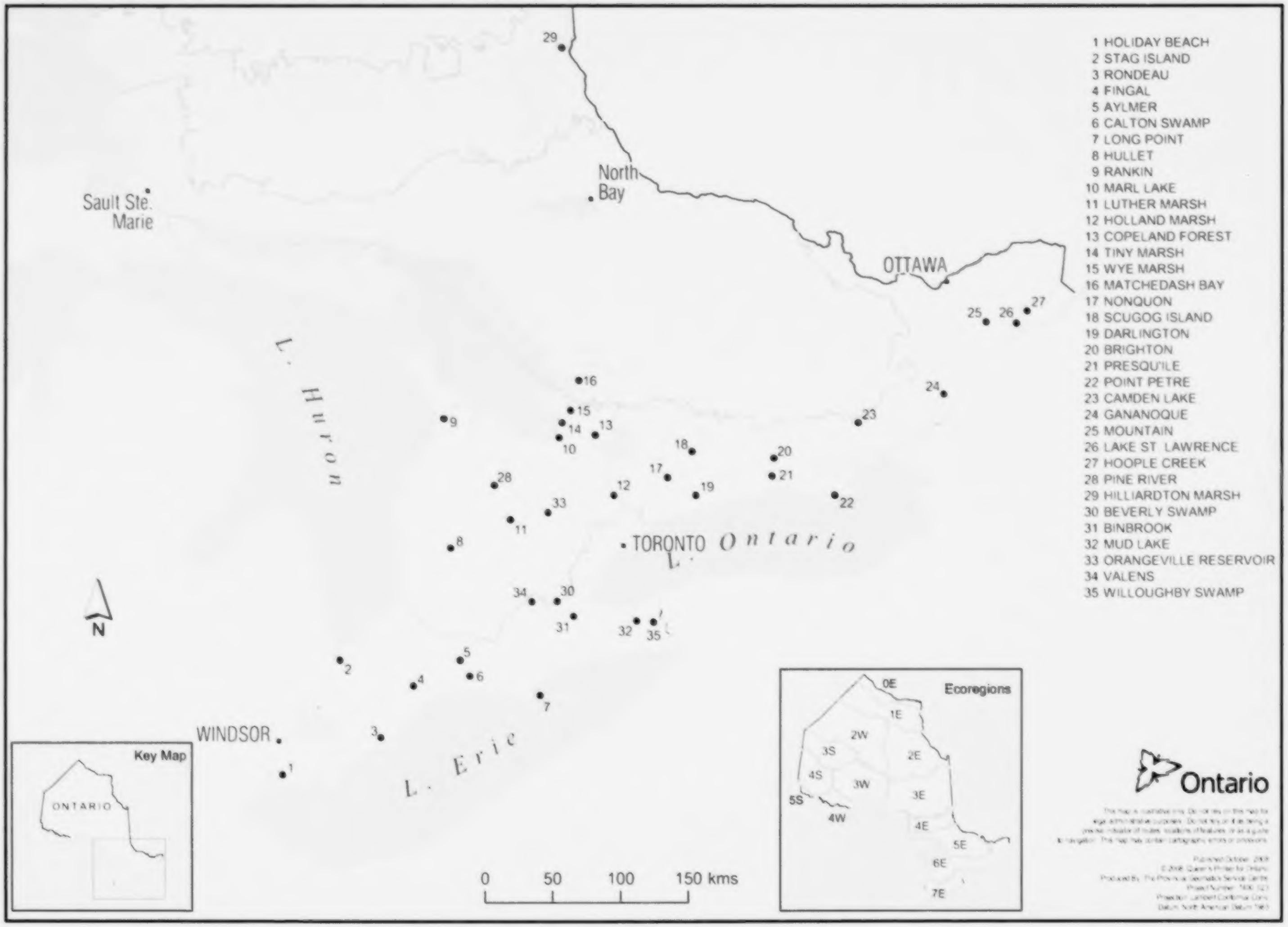


Figure 6-33. Wildlife Management Areas in Ontario in relation to Ecoregion boundaries.

Legislation and Policy Basis

Wildlife Management Areas

The *Fish and Wildlife Conservation Act* (and its predecessor, the *Game and Fish Act*) gives MNR authority to acquire land for the purposes of management, perpetuation, and rehabilitation of wildlife resources. Section 81 of the *Fish and Wildlife Conservation Act* states that:

- Land may be acquired under the *Ministry of Government Services Act* for the purpose of the conservation or management of wildlife or fish populations or the ecosystems of which those populations are a part.
- The Minister may, on behalf of the Crown, accept gifts for the purpose of conservation or management of wildlife or fish populations or the ecosystems of which those populations are a part.
- The Minister or the Chair of the Management Board of Cabinet may enter into agreements for the purpose of conservation or management of wildlife or fish populations or the ecosystems. An agreement that relates to land may be registered in the proper land registry office and, during the term of the agreement, is binding on any person who acquires an interest in the land after the registration (Statutes of Ontario, 1997).

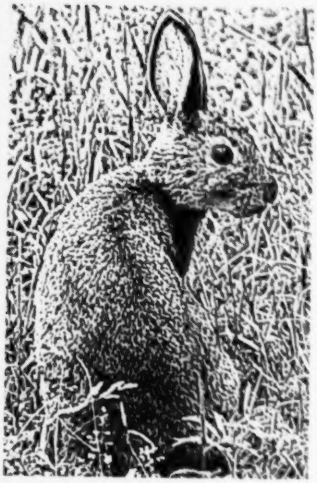


Image by P.A. Gray

While the *Fish and Wildlife Conservation Act* provides the primary mechanism for establishing Wildlife Management Areas in regulation, District Land Use Guidelines continue to guide decisions about areas on Crown land that have not been regulated.

Crown Game Preserves

Crown Game Preserves were originally established to protect wildlife populations, not habitat. Therefore, only hunting and trapping are prohibited or regulated. Section 9 of the *Fish and Wildlife Conservation Act* prohibits hunting and trapping and the possession of traps, firearms, explosives, and any sporting implement in Crown Game Preserves. However, the *Fish and Wildlife Conservation Act* enables the Lieutenant Governor-in-Council to prescribe conditions under which animals may be hunted or trapped in Crown Game Preserves.

Fish Sanctuaries

Fish Sanctuaries are established under the authority of the *Fisheries Act* and the Ontario Fisheries Regulations. A description of each sanctuary and the timing restrictions are included in the Ontario Fisheries Regulations (e.g., Government of Ontario, 2008b; MNR 2005d).

Protection Goal and/or Objectives

Wildlife Management Areas

Goal and objective statements vary for each Wildlife Management Area, and permitted activities vary between them. For example, the goal of the Holland Marsh Provincial Wildlife Area is to "*help maintain the supply of wetlands available to waterfowl in the area and increase the opportunity for high quality wildlife-based recreational experiences.*" Objectives for the Holland Marsh Provincial Wildlife Area include to:

- Increase the supply of wetlands available for the staging and production of waterfowl.
- Provide an opportunity for high quality wildlife-based recreational experiences for hunters and other visitors on a day-use basis.
- Practice, interpret, and demonstrate land use practices, which are most productive for wildlife.
- Interpret wildlife values and encourage

appreciation of those values.
- Provide an area where the educational experience is based on wildlife resources (MNR, No Date[b]:4).

The goal of the Hullett Provincial Wildlife Area near Wingham "*...is to manage its resources to provide opportunities for high quality, wildlife-based, day-use, recreational experiences for the people of Ontario.*" Objectives for the Hullett Provincial Wildlife Area include to:

- Manage the area for waterfowl and a range of benefits to wildlife.
- Provide public hunting opportunities.
- Provide other resource-based recreational opportunities.
- Provide resource-based educational opportunities.
- Manage forests within the area for production of wood products when consistent with the goal.
- Provide other resource-based opportunities consistent with the above (MNR, 1985b).

The goal of the Fingal Provincial Wildlife Management Area is "*to provide opportunities for quality wildlife-based hunting and interpretation, and compatible low-intensity recreation, on a day-use basis, in an area managed for wildlife production in conjunction with agricultural operations and wood fibre production*" (MNR, 1978b).

Crown Game Preserves

Crown Game Preserves were established on private and Crown land to:

- Provide sanctuary and refuge for wildlife populations for the purposes of protection, preservation, conservation, and propagation.
- Increase wildlife populations in surrounding areas.
- Provide tourism opportunities (Pileggi and Gray, 1991:1).

It is important to note that only hunting, fishing, and trapping are restricted, and in some cases, these activities are permitted. Lands and waters (e.g., wildlife habitat) are not protected under the auspices of the Crown Game Preserve designation.

Fish Sanctuaries

The principle goal/objective of fish sanctuaries is to protect fish population productivity.

Selection Criteria

Wildlife Management Areas

No standard suite of criteria is applied in the selection of these areas. Generally, they must:

- Provide valuable fish and wildlife habitat.
- Contain significant fish and wildlife populations.
- Be in a relatively natural state, and where appropriate, provide opportunities for habitat enhancement.
- Provide recreation, education, and extension opportunities.

Crown Game Preserves

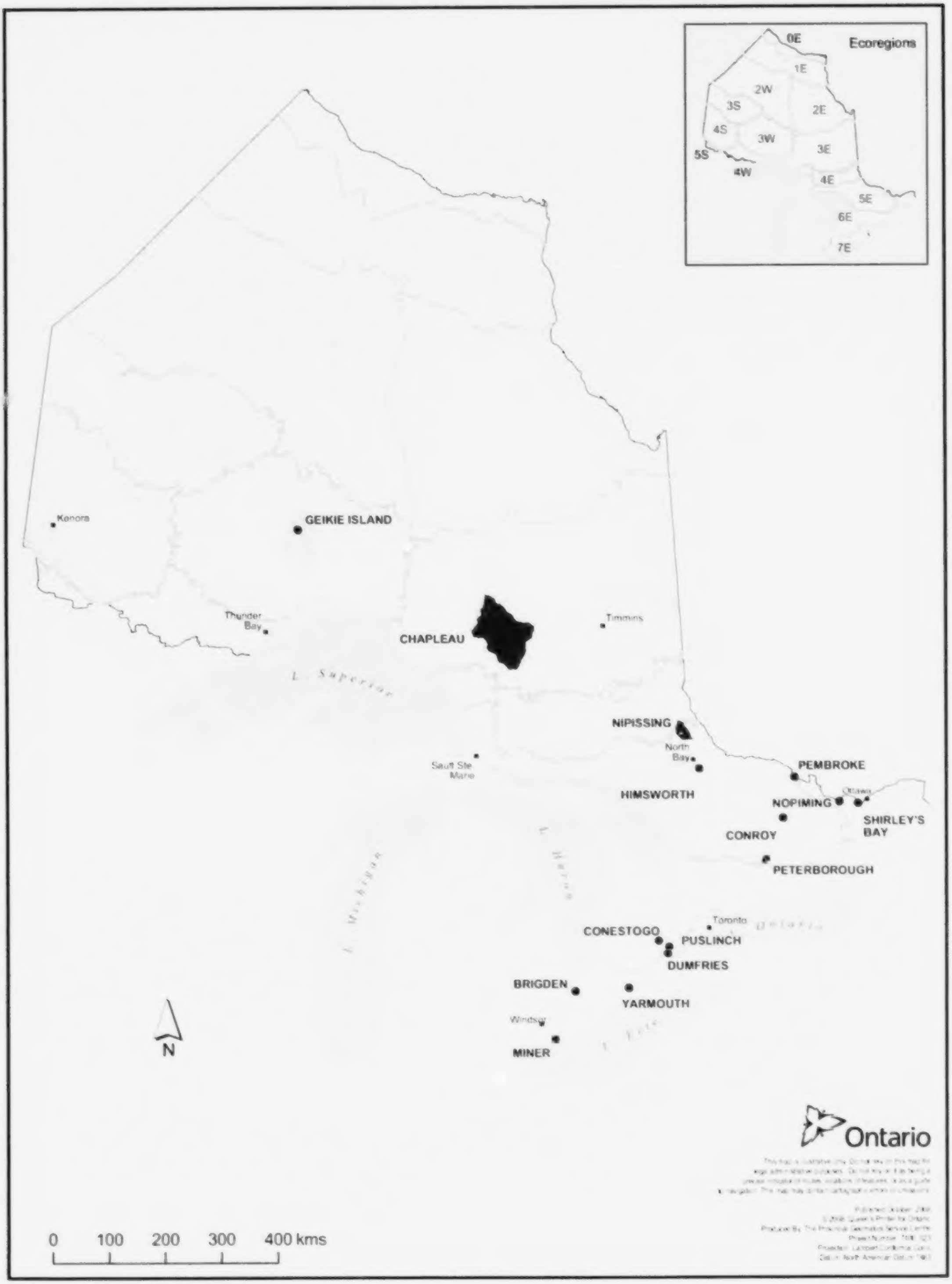
Crown Game Preserves were selected on the basis of the perceived need to protect populations of selected species. For example, the Geikie Island Crown Game Preserve was established to protect Woodland Caribou, the Chapleau Crown Game Preserve to protect furbearer populations (including Beaver [*Castor Canadensis*], Fisher [*Martes pennanti*], and American Marten), and the Peterborough Crown Game Preserve to protect White-tailed Deer (Pileggi and Gray, 1991).

Fish Sanctuaries

The majority of areas selected as Fish Sanctuaries are delineated on the basis of their importance as spawning and staging habitat. However, Sanctuaries have been created for a variety of other reasons, including:

- Protection of fish populations immediately downstream of barriers to migration.
- Protection of unique genetic stocks in danger of extinction (e.g., Aurora Trout [*Salvelinus timagamiensis*] lakes and the Lake Simcoe strain, and Lake Trout refugium lakes).
- Protection of fish populations in areas where research is being conducted, and where fish harvest would compromise studies.
- Protection of fish populations identified for use as genetic stock for species introductions and supplementary stocking (e.g., Nogies Creek).

Figure 6-34. Crown Game Preserves in Ontario in relation to Ecoregion boundaries.



- Reduction of the chances of the introduction of new fish species and diseases into the water supplies of Provincial Fish Culture Stations.
- Reduction of social problems and trespass.

Management Objectives and/or Guidelines

Habitat and species management areas are often identified and managed in cooperation with Conservation Authorities, Ontario Parks, and private landowners.

Wildlife Management Areas

Wildlife Management Areas are often cared for under the auspices of a management plan organized according to zones. For example, the *Holland Marsh Management Plan* (MNR, No Date[b]) employs four management zones to guide human activity:

- **Wildlife Management Zone:** Emphasis in this zone is to manage according to ecologically sound principles. For example, with the exception of water control structures, no physical construction is permitted. Limited facilities such as boardwalks are permitted where necessary. Hunting and trapping are permitted in this zone.
- **Development Zone:** Areas suitable for facilities, such as boardwalks, parking, and interpretative facilities are encompassed within this zone.
- **Special Management Zones:** Special Management Zones are located in the Wildlife Management Zone and include a Waterfowl Refuge Zone and a Hunting Zone.
- **Interpretive Zone:** The Interpretive Zones are located within the Wildlife Management Zone and the Development Zone. Interpretive programs are designed according to season, location, and natural area theme.

In support of the goal and objectives, the management plan contains guidelines for fish and wildlife management, physical management of habitat, and user management (e.g., recreation and research). Similarly, the Hullett Provincial Wildlife Area is managed through application of a zoning system to guide human activities, to identify particular important features, and to separate different resource users (Fig. 6-35):

- **Access and Development Zone:** Identifies the location of public access roads, parking areas, and facilities.
- **Wetland Management Zone:** Identifies the pond system and dikes. Management activities in this zone are focused on waterfowl staging and production.
- **Upland Management Zone:** Identifies the dry land areas where a variety of resource activities and benefits are managed (MNR, 1985b:5).

Wildlife Management Areas are open all year to people interested in activities like hiking, wildlife viewing, archery, trap shooting, cross-country skiing, and berry picking. A number of Wildlife Management Areas permit hunting during open seasons (MNR, 1986b, 2007b).

Crown Game Preserves

Given the wildlife management philosophy and available techniques of the day (i.e., the early part of the 20th century), the establishment of the Crown Game Preserve system represented a progressive approach to wildlife management. Initial reports issued by the Ontario Game and Fish Department suggest that Crown Game Preserves fulfilled the role for which they were originally established. In the long-term, however, the Crown Game Preserve system was not as successful as was originally hoped. For example, in some Preserves, wildlife populations increased beyond the capacity of the habitat to support them (e.g., White-tailed Deer in the Peterborough Crown Game Preserve). This resulted in significant degradation of habitat and a decline in the Beaver population due to White-tailed Deer browsing on important food species like Balsam Poplar (*Populus balsamifera*) and White Birch (*Betula papyrifera*). Because no formal provision was made to protect and manage wildlife habitat, habitat was destroyed in many Crown Game Preserves through urban expansion and intensive agriculture (e.g., elimination of woodlands and wetlands) (Pileggi and Gray, 1991).

Figure 6-35. The management zones in Hullett Provincial Wildlife Management Area (MNR, 1985b).

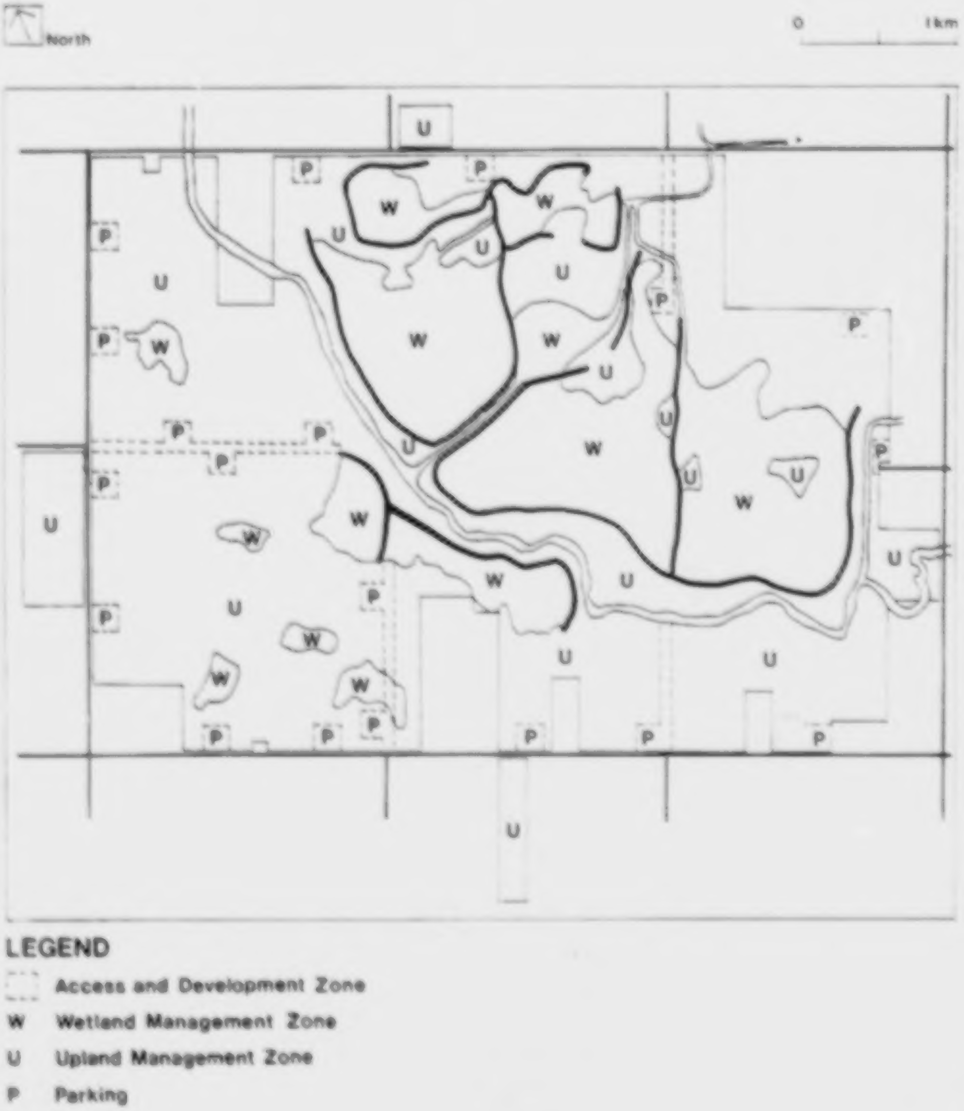


Image by D. Paleczny

A number of activities and management programs have been permitted in Crown Game Preserves over the years, including:

- Use as population reservoirs from which animals were captured and relocated to other areas.
- The separation of a prison farm and its inmates from the hunting public.
- Restricting hunting and trapping opportunities.
- Collection of fish spawn.
- An artillery range.
- Recreational activities, such as wildlife viewing, swimming, hiking, picnicking, and camping.
- Wildlife research.
- A Scout camp and a Junior Ranger camp.
- Provincial Parks and a National Park.
- Cottage and urban development.
- Agriculture.
- Natural resource extraction, such as mining and logging.
- Wild rice planting to enhance wildlife feeding habitat (Pileggi and Gray, 1991).

Although addressed in District Land Use Guidelines, and with the exception of the Chapleau Crown Game Preserve (see MNR, 1990), Crown Game Preserves have not been subjected to formal management planning processes (Pileggi and Gray, 1991).

Fish Sanctuaries

No fishing of any kind is permitted in a Fish Sanctuary. The length of time a Sanctuary is in place depends on the purpose of the site. Fish Sanctuaries that are created to protect staging and spawning fish are usually in place only during that time of year when the fish are concentrated immediately before, during, and after spawning. For the remainder of the year, the area is open to fishing. In other areas, Fish Sanctuaries are in place year round, thereby prohibiting fishing throughout the year (Government of Ontario, 2008b).

Degree of Protection for Wildlife Management Areas, Crown Game Preserves, and Fish Sanctuaries and the Corresponding IUCN Protected Area Management Category: A Preliminary Assessment

Wildlife Management Areas

Although a site by site assessment is required, many of these areas are 'fully protected' and would qualify as IUCN Category IV or V protected areas. Areas that are not described in regulation may qualify as 'partially protected' areas.

Crown Game Preserves

While species protection objectives of Crown Game Preserves are established in legislation in perpetuity on a year-round basis, a variety of land uses are permitted (e.g. mining and urban development). Given that these land uses do not characterize 'fully protected' areas, Crown Game Preserves are classified as 'partially protected' areas in recognition of their species management objectives, not habitat protection.

Fish Sanctuaries

While species protection objectives of Fish Sanctuaries are established in legislation, habitat is not protected. Therefore, Fish Sanctuaries qualify as 'partially protected' areas and do not qualify for inclusion in the IUCN protected areas classification system.

Key Contact(s)

Biodiversity Branch
Ministry of Natural Resources
300 Water Street, 6th Floor
Peterborough, Ontario
K9J 8M5
Telephone: 705-755-1939
Fax: 705-755-1900

Conservation Ontario
P.O. Box 11, 120 Bayview Parkway
Newmarket, Ontario, L3Y 4W3
Telephone: 905-895-0716
Fax: 905-895-0715
Website: www.conservation-ontario.on.ca

6.9 Niagara Parks System

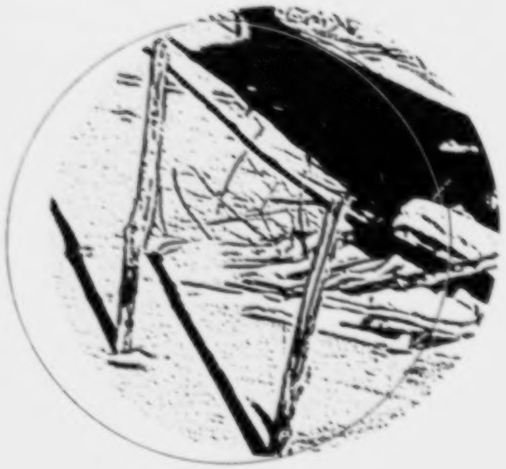


Image by P.A. Gray

Introduction

By the 1870s an area adjacent to Horseshoe Falls was congested with uncontrolled and unsightly commercial development. In 1878, the Governor General of Canada, Lord Dufferin, recommended that a park be established next to the falls, and in 1885 the Ontario Government passed the *Niagara Falls Park Act (Niagara Park Act)* for the "*preservation of the natural scenery about Niagara Falls*". The Niagara Parks System was formally initiated in 1888 with the official opening of the 62 ha Queen Victoria Park, created under the auspices of the *Queen Victoria Niagara Falls Park Act* (1887) (Commissioners for Niagara Falls Park, 1887). Today, the Niagara Parks System encompasses 1,720 ha stretching over 53 km from Fort Erie to Niagara-on-the-Lake. Properties include historic sites, golf courses, a horticultural school and world-class botanical garden, restaurants, biologically diverse natural areas (about 21% of the area), and a butterfly conservatory (Niagara Parks, 2007).

To achieve the objectives of the *Niagara Parks Act* the Niagara Parks Commission works with a mandate to preserve and commemorate the historical, cultural, and environmental significance of the Niagara River corridor (Niagara Parks, 2007).

Legislation and Policy Basis

This system of parks is managed under authority of the *Niagara Parks Act*, which enables the Niagara Parks Commission and defines its roles and responsibilities (Statutes of Ontario, 1990b).

Protection Goal and/or Objectives

The primary goal of the Niagara Parks Commission is "*to preserve and enhance the natural beauty of the falls and the Niagara River Corridor for the enjoyment of visitors while maintaining financial independence*". Accordingly, the Commission's programs are designed to:

- Maintain, preserve, and enhance the beauty and surroundings of the Canadian Horseshoe Falls and the Niagara River, from Fort Erie to Niagara-on-the-Lake.
- Develop, operate, and maintain a system of parks and recreational areas, historic sites, and educational facilities that complement the natural qualities of Niagara Falls and the Niagara River.
- Provide those wishing to view and enjoy the splendour of Niagara Falls an opportunity to do so with ease.
- Provide a broad range of educational opportunities in the fields of horticulture, geology, natural history, and the history of the Niagara Frontier.
- Continually seek new methods and means for improving the visitor's experience.
- Encourage complementary uses of lands adjacent to the parks system, and to work with other groups and agencies that have compatible interests in the park area.
- Ensure a suitable first and/or last impression for visitors.
- Encourage and promote the development of the tourism industry in Ontario and Canada.
- Pursue the self-sustaining nature of the parks system while recognizing the limitations of compatible and suitable revenue-producing facilities and the long-range need for capital improvements (Niagara Parks Commission, 1988:13).

Selection Criteria

The Niagara Parks System has been assembled from lands and waters with historical, educational, scenic, recreational, and natural heritage values (e.g., wildlife populations, wildlife habitat, and geological assets) (Niagara Parks Commission, 1988:34-49).

Management Objectives and/or Guidelines

The Niagara Parks Commission is a commercial enterprise of the Ontario Ministry of Tourism that operates under the auspices of the *Niagara Parks Act* and uses a planning process that is based on a 100-year vision, master plans, development strategies and plans, a three-year business plan, and an annual operating budget (C. Cavasin, personal communication). The 100-year vision focuses on a symbiosis of human culture and natural process based on:

- **Health:** Maintaining the integrity of the natural system.
- **Fitness:** Making whole the union of human beings, nature, and technology.
- **Cooperation:** The means to achieve the common goals of health and fitness (Niagara Parks Commission, 1988).

The 20-year strategic plan is based on themes unique to Niagara, including a commitment to provide opportunities to nature-based and scenic activities; educational, cultural, and historical activities; adventure and exploration; and, entertainment. Every five-year action plan is designed to ensure the Commission operates proactive and dynamic programs that, through ongoing assessment, meet the needs of the Niagara Parks System and the people who visit the area (Niagara Parks Commission, 1988).

The Degree of Protection for the Niagara Parks System and the Corresponding IUCN Protected Area Management Category: A Preliminary Assessment

Many Niagara Parks System properties are 'fully protected' areas because protection is the primary objective, the commitment is legislated, they are protected year-round in perpetuity, and they exclude industrial activities and large-scale developments. The parks in the Niagara Parks Commission's system qualify as IUCN Category III protected areas. Natural areas qualify as IUCN Category IV protected areas (D. Whitehouse, personal communication).

Key Contact(s)

Niagara Parks Commission
Oak Hall Administration,
Box 150, 7400 Portage Road South,
Niagara Falls, Ontario
L2E 6T2
Telephone: 905-356-2241
Toll Free: 1-877-642-7275
Fax: 905-354-6041
Website www.niagaraparks.com

Image by T.J. Beechey

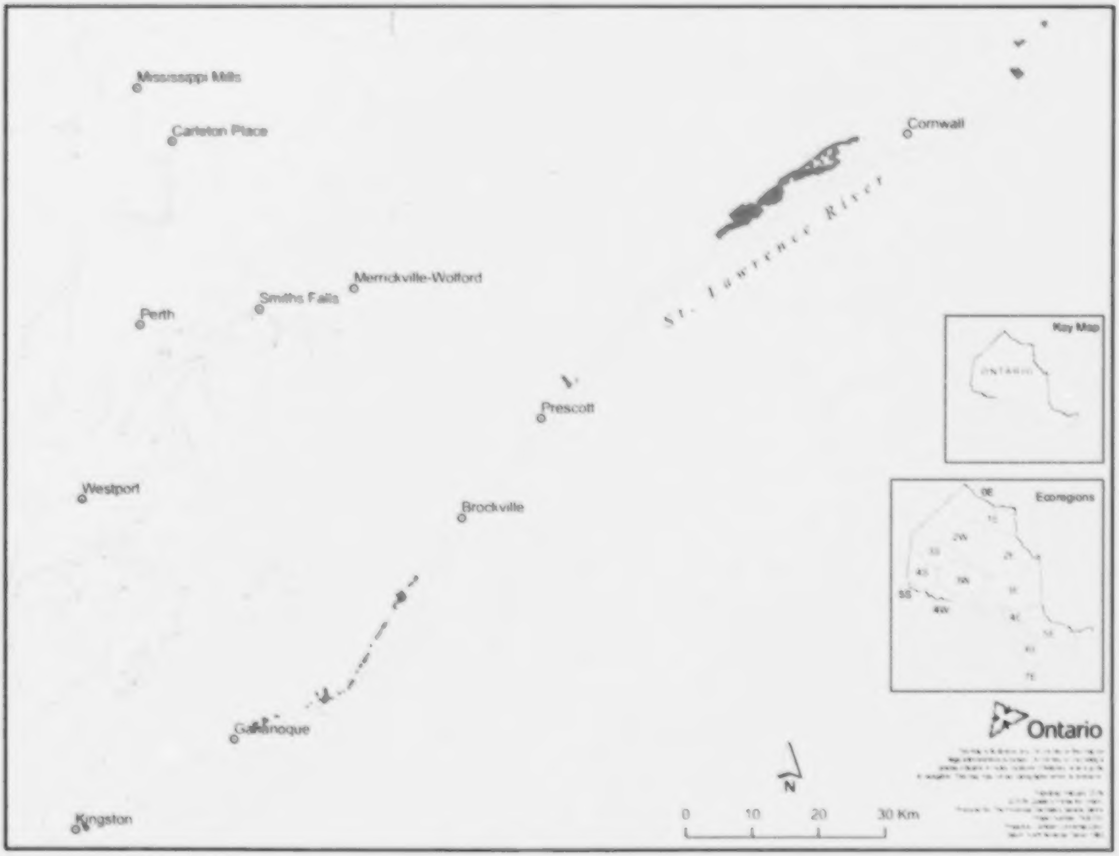
6.10 Parks of the St. Lawrence

Introduction

The Parks of the St. Lawrence extends 200 km from Kingston to the Quebec border. In addition to 12 day-use area parks and campgrounds along the St. Lawrence River, the area includes two major historic attractions (Fort Henry and Upper Canada Village), two parkways (the Long Sault Parkway and the 1000 Islands Parkway), a golf course, a marina, a Migratory Bird Sanctuary (Fig. 6-36), and a variety of other facilities (St. Lawrence Parks Commission, 2006). The Parks of the St. Lawrence are managed by the St. Lawrence Parks Commission.

Initially, the St. Lawrence Parks Commission was incorporated as The Ontario-St. Lawrence Development Commission in March 1955, and assigned a mandate *"to develop, control, manage, operate, and maintain parks."* 'Parks' were defined as *"all lands in the counties of Glengarry, Stormont, Dundas, Grenville, and Leeds vested in and placed under the control of the Commission, including highways, roads and boulevards, and any interest in lands."* In May 1958, an amendment to the area of operation to include Frontenac, Lennox, and Addington Counties resulted in a network of parks encompassed by intensively managed land. Currently, 2,777 ha are managed by the St. Lawrence Parks Commission (J. Tarini, personal communication). In 1964, the Commission's name was changed to the St. Lawrence Parks Commission (St. Lawrence Parks Commission, No Date).

Figure 6-36. The properties managed by the St Lawrence Parks Commission.



Legislation and Policy Basis

This system of parks is managed under authority of the *St. Lawrence Parks Commission Act*, which enables the St. Lawrence Parks Commission and outlines its roles, responsibilities, and powers.

Protection Goal and/or Objectives

The St. Lawrence Parks Commission provides cultural, recreational, and educational opportunities through the presentation and interpretation of historical sites and attractions, and the development and operation of parks, campgrounds, scenic parkways, trails, natural areas, and recreational facilities. (St. Lawrence Parks Commission, 1995:1). The objectives of the St. Lawrence Parks Commission are to:

- Encourage and promote the tourism industry in eastern Ontario on a year-round basis for the economic benefit of the people of the region and the province as a whole.
- Acquire, preserve, develop, and maintain historic and recreational resources within the St. Lawrence Parks Commission's jurisdiction.
- Operate historic sites, campgrounds, parkways, recreation areas, and/or other facilities which enhance the Commission's contribution to tourism development, recreation, learning, and heritage conservation.
- Provide the Commission's services and facilities at a high standard of excellence for the recreational and learning enjoyment of its visitors (St. Lawrence Parks Commission, 1995a:1-2).

Selection Criteria

The St. Lawrence Parks Commission's parks system in the Chrysler Park and Long Sault Parkway Area was created after the area was flooded in the 1950s to create the St. Lawrence Seaway. The flooding created islands and table lands that are now protected as part of the parks system. The Upper Canada Migratory Bird Sanctuary was established in 1961 on lands acquired by the St. Lawrence Parks Commission after the construction of the St. Lawrence Seaway. It encompasses mature upland forest, early successional forest, old field, wetland, and open water habitats. There are more than 8 km of hiking trails in the Sanctuary. Overall, these properties demonstrate many qualities, including historical, educational, scenic, recreational, national heritage (e.g., wildlife populations and wildlife habitat), and scientific values (MNR and the St. Lawrence Parks Commission, 1978).

Management Objectives and/or Guidelines

The St. Lawrence Parks Commission is a commercial operation of the Ontario Ministry of Tourism, and the parks system is managed in accordance with strategic and operations plans developed for the area under the auspices of the *St. Lawrence Parks Commission Act*. For example, the Lake St. Lawrence Wildlife Master Plan provides guidelines for the management and protection of wildlife and wildlife habitat for six management units within the system, including the Upper Canada Migratory Bird Sanctuary, other public lands, and private lands (MNR and the St. Lawrence Parks Commission, 1978).

The Degree of Protection for the Parks of the St. Lawrence and the Corresponding IUCN Protected Area Management Category: A Preliminary Assessment

Some properties in the Parks of St. Lawrence are 'fully protected' because protection is the primary objective, the commitment is legislated, they are protected year-round in perpetuity, and they exclude industrial activities and large-scale developments. A closer examination of properties is necessary to assign them to the appropriate IUCN category. Categories may include Ia, II, III, and IV. Some areas may be designated as 'partially protected' as well.

Key Contact(s)

St. Lawrence Parks Commission
13740 Country Road 2
Morrisburg, Ontario K0C 1X0
Telephone: 613-543-3704 Toll free: 1-800-437-2233
Fax: 613-543-2847
Website: *www.stlawrenceparks.com*
Information: *getaway@parks.on.ca*

6.11 Conservation Authority Properties

Introduction

There are 36 Conservation Authorities (CAs) in Ontario. Represented by Conservation Ontario, CAs are community-based environmental organizations dedicated to conserving, restoring, developing, and managing natural resources on a watershed basis (Fig. 6-37) (Conservation Ontario, 2005a). The Conservation Authority concept evolved out of flood and erosion control initiatives on the Grand River during the first few years of the 20th century. The process leading to the formal establishment of the Authorities began in 1941 at a conference attended by private citizens and representatives from government and universities who met to discuss problems related to flooding, drought, erosion, and water quality (Mitchell and Shrubsole, 1992:36; MNR, 1986c).

In response to recommendations from the conference, the Governments of Ontario and Canada reviewed conservation issues in Ontario and established the Conservation Authorities in 1946 to coordinate municipal and provincial government decisions and to promote a comprehensive approach to resource management (Mitchell and Shrubsole, 1992). Since then, Conservation Authorities throughout the province have worked cooperatively with all levels of government, NGOs, universities, and private citizens to manage large areas in a number of watersheds. For example, many Conservation Authority prevention programs are designed to reduce flood potential and erosion, improve water quality and habitat, and contribute to the preservation of woodlands (Davis, 1999). Currently, Conservation Authorities own 165,634 ha (Table 6-17) (Conservation Ontario, 2006).

Table 6-17. Conservation Areas in Ontario.

Landholding Category*	Area (ha)
Forests	121,438
Wetlands	51,859
Natural Hazard (i.e., flood and erosion related)	42,060
Great Lakes Shoreline	4,783
Niagara Escarpment	10,169
Oak Ridges Moraine	10,038
Recreation (both passive and active)	110,130
Cultural (with important sites, areas or structures)	16,524
Natural Heritage	78,776
ANSIs	54,210
Office/Workshop	768

* A single parcel of land may be categorized in more than one way. In addition Conservation Authorities have 2,290 km of trails.

Source: Conservation Ontario (2006)

Legislation and Policy Basis

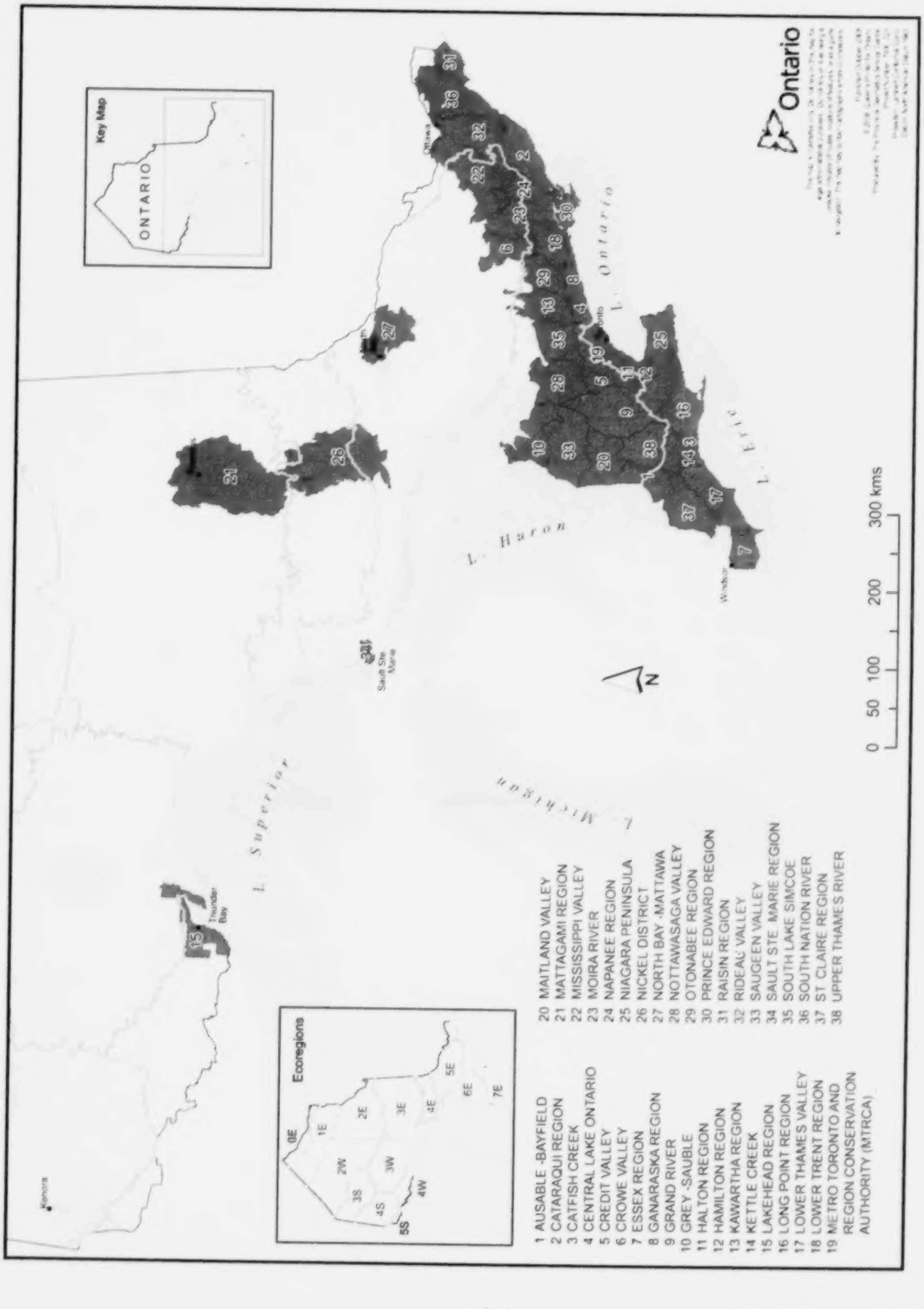
Conservation Authorities work under the auspices of the *Conservation Authorities Act*. In addition, the management of natural assets within Conservation Authority areas is influenced by many other statutes, including the: *Agricultural Development and Rehabilitation Act, Drainage Act, Environmental Protection Act, Environmental Assessment Act, Pesticides Act, Ontario Water Resources Act, Lakes and Rivers Improvement Act, Beach Protection Act, Mining Act, Navigable Waters Act, Public Lands Act, Provincial Parks and Conservation Reserves Act, Water Transfer Control Act, Planning Act, Municipal Act, Public Utilities Act, Public Health Act, Niagara Escarpment Parks Development Act, Navigable Waters Protection Act*, the *Fish and Wildlife Conservation Act, Greenbelt Act, Oak Ridges Moraine Conservation Act*, and the *Lake Simcoe Protection Act*.

Protection Goal and/or Objectives

The Conservation Authorities strategic vision includes "*watersheds where human needs are met in balance with the needs of the natural environment*" (Conservation Ontario, 2005b). They are mandated to ensure the conservation, restoration, and responsible management of Ontario's water, land, and natural habitats through programs that balance human, environmental, and economic needs. The Conservation Authorities use four objectives in their programs to:

- *"Ensure that Ontario's rivers, lakes, and streams are properly safeguarded, managed, and restored.*
- *Protect, manage, and restore Ontario's woodlands, wetlands, and natural habitat.*
- *Develop and maintain programs that will protect life and property from natural hazards such as flooding and erosion.*
- *Provide opportunities for the public to enjoy, learn from, and respect Ontario's natural environment"* (Conservation Ontario, 2009).

Figure 6-37. Conservation Authorities in Ontario in relation to Ecoregion boundaries. It is important to note that although 38 Conservation Authorities are depicted on this map, Moira (#23), Napanee (#24) and Prince Edward (#30) operate under one board for 'Quinte Conservation' with three geographically organized advisory groups (J. Bowman, personal communication).



The variety of activities carried out by Conservation Authorities include:

- *"Watershed strategies and management.*
- *Flooding and erosion protection.*
- *Water quality and quantity.*
- *Reforestation and sustainable woodlot management.*
- *Ecosystem regeneration.*
- *Environmental education and information programming.*
- *Land acquisition.*
- *Outdoor recreation.*
- *Soil conservation.*
- *Environmental land use planning.*
- *Habitat protection.*
- *Agriculture and rural landowner assistance.*
- *Sensitive wetlands, flood plains, valley lands protection"* (Conservation Ontario, 2009)

Each Conservation Authority develops and employs goals and objectives that reflect the unique ecological and socio-economic circumstances of the area. For example, the Grand River Conservation Authority, which also is responsible for the management of the Grand River as a Canadian Heritage River, developed a management strategy for the watershed with two goals:

- *"To strengthen, through shared responsibility, the knowledge, stewardship, and enjoyment of the heritage and recreational resources of the Grand River watershed."*
- *To improve the well-being of all life in the Grand River watershed"* (Grand River Conservation Authority, 1994:25).

In support of these goals, the management strategy promotes three fundamental guidelines for action:

- *"Acknowledge, promote, and strengthen existing partnerships and programs which recognize, protect, and enhance heritage and recreational resources.*
- *Encourage the development and funding of new partnerships and programs where knowledge, stewardship, and/or enjoyment need to be strengthened for heritage and recreational resources.*
- *Provide ongoing opportunities for all stakeholders to endorse and participate voluntarily in the Grand Strategy"* (Grand River Conservation Authority, 1994).

Image by P.A. Gray

Selection Criteria

As depicted in Fig. 6-37, Conservation Authorities are organized on a watershed basis. A watershed is a unit of land and water defined by the area that drains into a river and its tributaries. Within each watershed, protected areas have been identified and established using a variety of criteria relating to recreational values, fish and wildlife habitat, flood and erosion control requirements, and cultural/historical assets.

Management Objectives and/or Guidelines

Generally, each Conservation Authority develops and works according to management and operating plans designed to guide decisions. For example, the environmental planning policies that guide the Upper Thames River Conservation Authority include objectives pertaining to natural hazards, natural heritage, natural resource, servicing and mitigation, and integrated resources and systems planning. Objectives include:

- Protect life and property from risks associated with natural hazard processes.
- Ensure that development and site alteration do not create new hazards.
- Ensure that development and site alteration in natural hazard areas have no adverse environmental impacts.
- Protect from potentially negative impacts of development and site alteration any natural heritage features and systems.
- Maintain, restore, and enhance biodiversity, ecological function and connectivity of natural heritage features and systems.
- Ensure the protection of natural resources of the watershed over the long term.
- Mitigate the impacts of land development and servicing.
- Protect the watershed from potentially harmful impacts related to land development including roads, sewers, and stormwater management facilities.
- Achieve a healthy ecosystem through the protection and enhancement of resources and processes and their linkages.
- Consider potential impacts of decisions on all components and features that form the integrated watershed system including natural hazards, natural heritage, and servicing and mitigation (UTRCA, 2006).

The Degree of Protection for Conservation Authorities and Authority Properties and the Corresponding IUCN Protected Area Management Category: A Preliminary Assessment

Properties within each Conservation Authority are protected to varying degrees to meet specific objectives. Properties that are strictly protected (i.e., dedicated in perpetuity to protect biodiversity) are classed as 'fully protected' and potentially could qualify as IUCN Category Ia, II, III or IV areas. Many areas are actively managed with water control structures. Where this is done primarily to improve species or habitat management, the IUCN Category IV protected area designation would apply (Table 6-18).

Table 6-18. Conservation Authority Properties and the IUCN protected area managment categories.

Properties	IUCN Categories
Great Lakes Shoreline, Wetlands, ANSIs, Niagara Escarpment, Oak Ridges Moraine	**II, III, IV, V**
Natural Hazard, Natural Heritage, Cultural, Trails, Forests, Recreation	**IV, pp**
Offices / workshops,	**n/a**

pp = 'partially protected' as described in Chapter 2.

The overall intent for the management of Conservation Authority areas is consistent with many of the criteria/standards developed for Category V protected areas by the IUCN and affiliated organizations (see Dudley, 2008 and Phillips, 2002). However, the collective area encompassed by natural heritage areas in each of the tertiary watersheds does not meet the 75% rule recommended by IUCN (i.e., the primary objective of nature conservation should apply to 75% of the protected area; Dudley, 2008:35). Given that the 75% rule is not formally prescriptive, and given that Category V criteria do recognize a holistic, ecologically-oriented approach to management (including important terrestrial 'greenway' and aquatic 'blueway' linkages over large areas), there may be merit in recognizing the watersheds managed by Conservation Authorities as Category V protected areas.

Key Contact(s)

Conservation Ontario
P.O. Box 11, 120 Bayview Parkway
Newmarket, Ontario
L3Y 4W3
Telephone: 905-895-0716
Fax: 905-895-0715
Website: www.conservation-ontario.on.ca

6.12 Forest Management Reserves and Crown Protection Forests

Introduction

A variety of Forest Management Reserves are used in Ontario to enhance biodiversity values and sustainable forest practices. This section focuses on the Area of Concern (AOC) mechanism, defined as a geographical unit within an area selected for timber harvest operations that contains one or more natural or cultural values that merit protection. Areas of Concern are areas afforded special consideration during the forest management planning process and during harvest operations. The Area of Concern prescriptions are usually comprised of Forest Management Reserves and Crown Protection Forests. A Crown Protection Forest is productive forest land on which forest management activities cannot normally be practiced without incurring deleterious environmental affects because of physical limitations such as steep slopes and shallow soils over bedrock (MNR, 2004c).

Ontario encompasses 2% (71 million ha) of Earth's forest of which 57 million ha are located on publicly owned (Crown) land. Of the 57 million ha on Crown land, the Government of Ontario issues licences to plan for and undertake commercial harvesting on a portion of 26 million ha, commonly known as 'productive forest'. Forest management plan exclusions (including Areas of Concern) encompass about 2.9 million ha or 11% or the productive forest on Crown land. Crown Protection Forest encompasses about 1.3 million ha or 5% or the productive forest on Crown land (MNR, 2006f; L. Watkins, personal communication).

Legislation and Policy Basis

An Area of Concern is identified and managed under the auspices of the *Crown Forest Sustainability Act* and the *Forest Management Planning Manual for Ontario's Crown Forests* (MNR, 2004c). A number of policies contribute to the identification and protection of values, including:

- *Policy Framework for Sustainable Forests* (MNR, 1994a).
- *Forest Resource Assessment on Crown Lands in Ontario* (MNR, 2003a).
- *Resource-Based Tourism Policy* (MNR, No Date[c]).

It is important to note, however, that harvesting in some Forest Management Reserves is permitted under certain circumstances.

Protection Goal and/or Objectives

The primary goal of Area of Concern planning is to give careful consideration to specified natural, social, and cultural values during forest management planning and to develop prescriptions that will protect the values during and following forest operations, including harvesting (Fig. 6-38).

Selection Criteria

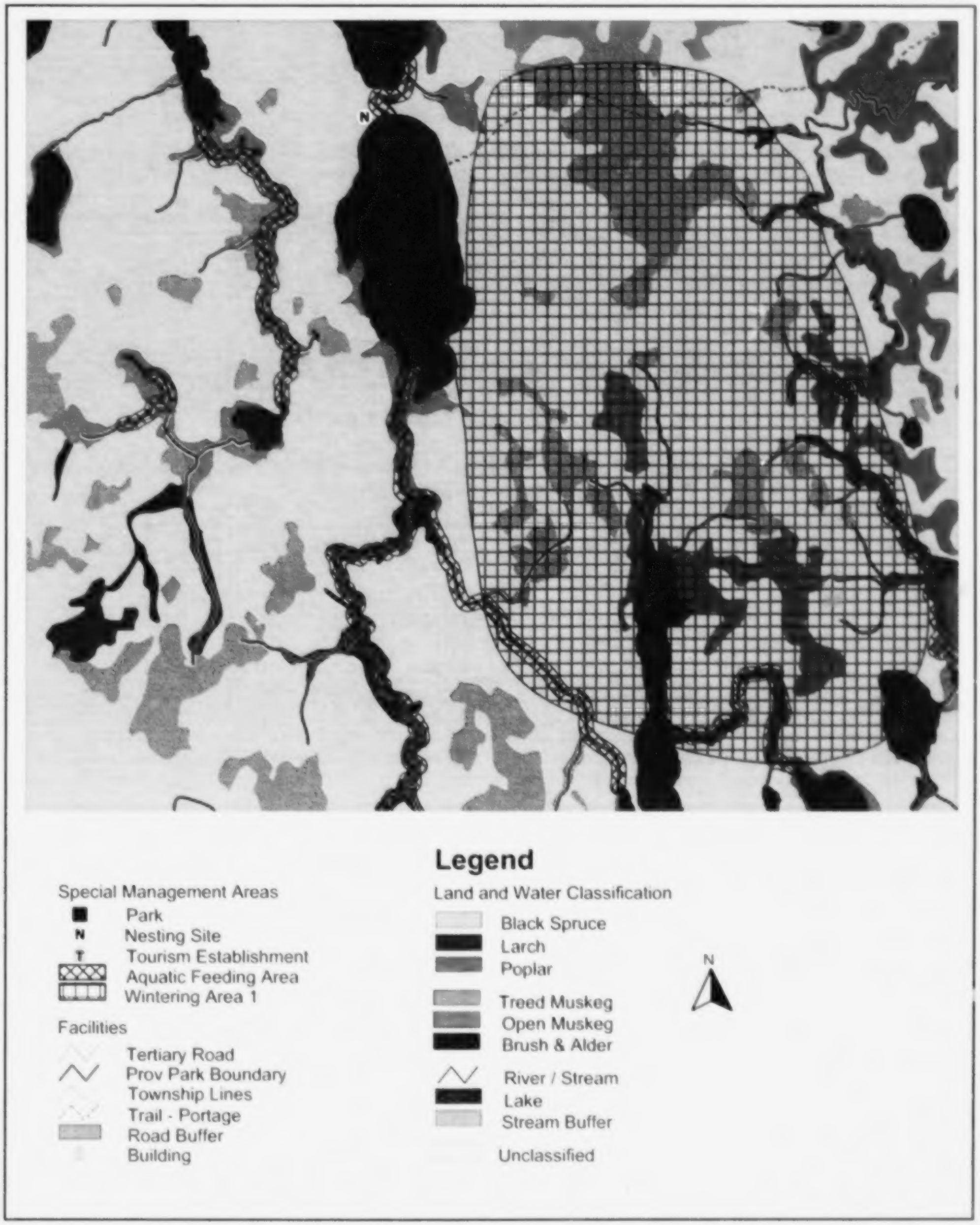
Selection procedures for identifying and managing Areas of Concern are outlined in the *Forest Management Planning Manual for Ontario's Crown Forests* (MNR, 2004c). Biodiversity, natural heritage, and cultural features are identified. Selection is based on a pre-determined suite of values. For each Forest Management Plan, a values map (see Fig. 6-38) (or series of maps) for the Forest Management Unit is prepared consistent with the requirements of the Forest Management Plan. The values map(s) provides a summary of the geographical location(s) of known natural resource features, land uses, and values that must be considered in a Forest Management Plan. The value(s) map is used primarily as background information for planning, for display, and as a means to solicit additional information about natural resource features, land uses, and values (MNR, 2004c). Values that may be portrayed on the map(s) include:

I. Natural Resource Features

Fisheries

- Major fish communities by lake or stream.
- Bait fish lakes.
- Spawning areas.
- Nursery areas.
- Migration areas.
- Headwater lakes and streams.
- Food supply areas.

Figure 6-38. An illustration depicting natural asset values delineated as Areas of Concern.



Wildlife

- Moose concentration areas (early and late winter).
- Moose aquatic feeding areas.
- Mineral licks.
- Calving sites.
- Deer wintering areas (yards).
- Raptor nests (e.g., eagles, Ospreys [*Pandion haliaetus*], Red-shouldered Hawks [*Buteo lineatus*], Cooper's Hawks [*Accipiter cooperii*], and other locally featured species such as Goshawks [*Accipiter gentiles*]).
- Heronries.
- Waterfowl nesting areas.
- Important habitats of rare, special concern, threatened, and endangered species.
- Woodland Caribou migration routes.
- Woodland Caribou calving areas and high summer use areas.
- Woodland Caribou wintering areas.

Forests

- Tree improvement areas.
- Seed orchards.
- Seed collection areas.
- Genetic test areas.
- Research plots (e.g., growth and yield plots).

II. Forest Resource Uses or Values

Tourism Establishments

- Main base lodges.
- Outpost camps.
- Commercial boat caches.
- Potential tourism areas.

Cottaging and Residential Sites or Areas

- Existing development.
- Proposed development (identified in Lakeshore Management Plans).
- Remote cottage sites.

Mineral, Aggregate or Quarry Development

- Pit and quarry permits or licenses.
- Active mining claims.

Commercial Fur

- Registered trapline areas.
- Trapper cabins.

Image by P.A. Gray

Bear Management Areas

Wild Rice Production Areas

Enhanced Management Areas

Crown Land Recreation

- Access points.
- Canoe routes.
- Portage trails.
- Hiking and nature trails.
- Snowmobile trails.
- Cross-country ski trails.
- Approved boat caches.
- Land use permit hunt camps.

III. Existing and Planned Infrastructure Features

- Roads and railways.
- Utilities (pipelines and hydro lines).
- Waste and sewage disposal sites.
- Potable water supply sources, including sites on lakes, rivers, and streams identified by any person as being used for water supplies.
- Communication towers.
- Airports and airstrips.
- Logging camps.
- Mills.

IV Cultural Heritage Sites and Features

- Cultural heritage landscapes.
- Built heritage resources.
- Archaeological sites and resources.
- Cemeteries/burial grounds, including Aboriginal peoples' cemeteries.
- Areas of archaeological potential.
- Traditional use sites.

V. Other Special Land Uses of Local Significance as Identified by Any Person

- Areas of significance to local communities such as areas for traditional or recreational activities.
- Reserves and other Aboriginal communities.
- Areas which have been identified as being required as reserve lands or for economic or capital development projects.
- Areas of Natural and Scientific Interest.
- Evaluated wetlands and evaluated wetland complexes.
- Registered trapline areas.
- Areas used for fuelwood or building materials.
- Sites of local archaeological, historical, religious, and cultural heritage significance, including Aboriginal graveyards, spirit sites, and burial sites.
- Medicinal plants.
- Significant ecological areas (e.g. significant woodlands, significant flora).
- Old growth red and white pine forest communities.

VI. Exclusions from the Land Base of the Management Unit

- Patented lands.
- Federal lands (e.g., Indian Reserves, Department of National Defence Bases, and National Parks).
- Provincial Parks, Conservation Reserves, and approved Provincial Park candidates.
- Crown land leases (e.g., land use permits and licenses of occupation).
- Cemeteries and burial grounds, including Aboriginal cemeteries and burial grounds.
- Areas of Natural and Scientific Interest which have been designated as exclusions from the management unit.

The values map is continually updated as information is assembled during the preparation and implementation of the Forest Management Plan. It also forms part of the supplementary documentation which accompanies the Forest Management Plan (MNR, 2004c).

Management Objectives and/or Guidelines

Values are identified, mapped, designated, and protected as part of the Forest Management Plan process. A detailed operational prescription is prepared for each Area of Concern to prevent, minimize, or mitigate adverse effects of forest management operations on the value(s). The MNR's approved forest management guides (formerly known as guidelines and implementation manuals) must be used in planning Area of Concern prescriptions (MNR, 2004c). Other planning tools, such as the use of viewscape analysis to develop prescriptions for viewsheds and flyways (which are of particular concern to remote tourism interests) may also be used (C. Graham, personal communication).

A prescription may be prepared for an individual Area of Concern or a group of Areas of Concern with common values. For a group of Areas of Concern, the values designated for protection and the selected prescription, must be common to the group. Prescriptions can include:

- Reserves (i.e., areas within which operations are prohibited).
- Modified operations (i.e., specific conditions or restrictions on operations).
- Regular operations (i.e., in accordance with the silvicultural ground rules) (MNR, 2004c).

For each Area of Concern, or group of Areas of Concern with common values, documentation of the decision-making process to identify the selected prescription is included as information in the Forest Management Plan. The selected prescriptions for all Areas of Concern identified in the Forest Management Plan include:

- **AOC or AOC Group Identifier:** The code by which an Area of Concern prescription can be identified on the operations maps and in the supplementary documentation for individual or groups of AOCs.
- **Description of Natural Resource Features, Land Uses or Values:** A description of the features, land uses or values encompassed by the Area of Concern prescription has been prepared.
- **Operational Prescription:** A brief description of the Area of Concern prescription including any constraints on harvest, renewal, and tending operations.
- **Source:** The source of the prescription, if applicable, including the title of the forest management guide (MNR, 2004c).

In addition, the Forest Management Plan contains information regarding public concerns about the operational prescription, whether the prescription differs from a forest management guide (i.e., is an exception) and whether there are any proposed primary or branch road crossings. All Areas of Concern must be identified on the 'Areas Selected for Operations Maps', and where practical, the selected prescriptions are portrayed on the same maps.

Historically, MNR has used more than 40 forest management guides (formerly known as guidelines and implementation manuals) and tactical strategies in forest management planning and operations (Box 6-1). The guides contribute to the protection and restoration of natural and cultural values in many ways. For example, the *Forest Management Guidelines for the Conservation of Woodland Caribou Habitat* (Racey et al., 1999) applied in MNR's Northwest Region, the *Forest Management Guidelines for the Provision of Marten Habitat* (Watt et al., 1996), and the *Forest Management Guide for Natural Disturbance Pattern Emulation* (MNR, 2001b) all require the maintenance of large areas of semi-mature and mature forest interspersed with harvested and regenerating areas. The *Management Guidelines for Forestry and Resource-Based Tourism* (Forest Management Branch, 2001) promote aspects of wilderness by describing techniques for road placement and control, and harvesting measures that reduce visual or auditory impacts of forest management activities. The forest management guides prescribe techniques and procedures designed to create a desired forest type following harvest. Application of these guides helps to maintain natural areas, protect biodiversity, and contribute to habitat networks.

The *Ontario Forest Accord* (MNR, 1999b) required an independent and transparent review of the forest management guidelines that are used to complete forest management plans. The *Review of Forest Management Guidelines* (MNR 2000b) contains 80 recommendations about a variety of topics including guideline reorganization and integration, the development and use of standards versus guidelines, variability issues associated with application, the guideline development and review process, the exceptions process, inventory and analytical tools, training and support, effectiveness monitoring, guideline format, and accessibility. A key recommendation is the consolidation of 34 guidelines into six forest management guides:

- Landscape Guide.
- Stand Guide.
- Silvicultural Guide.
- Site Guide.
- Tourism and Recreation Guide.
- Cultural Heritage Guide.

Once completed, they will enhance the natural asset manager's ability to apply the guides in a coordinated and integrated fashion. It is expected that integration of the six guides will enhance the natural resource manager's ability to evaluate and make decisions about entire ecosystems and specific habitats using a combination of coarse filter and fine filter planning.

The Degree of Protection for AOCs (Forest Management Reserves and Crown Protection Forests) and the Corresponding IUCN Protected Area Management Category: A Preliminary Assessment

Under the auspices of the MNR's forest management planning program, actions are taken to protect social, cultural, and natural values. These actions help conserve biodiversity at landscape, stand, and site scales. Although these areas are not protected in perpetuity and do not qualify as 'fully protected' areas, they do provide a degree of protection consistent with the 'partially protected' criteria.

Key Contact(s)

Forests Branch
Ministry of Natural Resources
Suite 400 Roberta Bondar Place, 70 Foster Drive,
Sault Ste. Marie, Ontario, P6A 6V5
Telephone: 705-945-6661
Fax: 705-945-6667
Website: http://mnronline.mnr.gov.on.ca/spectrasites/fmb/fmbhome.cfm

Box 6-1. Examples of forest management guidelines, manuals, and strategies used to care for natural and cultural values.

[(G) = Guideline, (O) = Manual or Strategy)]

Landscape scale management and public access control
(G) Forest Management Guide for Natural Disturbance Pattern Emulation (MNR, 2001b)
(G) Forest Management Guidelines for the Conservation of Woodland Caribou Habitat: A Landscape Approach (Racey et al., 1999)
(G) Forest Management Guidelines for the Provision of Marten Habitat (Watt et al., 1996)
(O) A Conservation Strategy for Old Growth Red and White Pine Forest Ecosystems in Ontario (MNR, 1995b)

Site specific management actions
(G) Environmental Guidelines for Access Roads and Water Crossings (MNR, 1988d)
(G) Code of Practice for Timber Management Operations in Riparian Areas (MNR, 1998c)
(G) Timber Management Guidelines for the Protection of Fish Habitat (MNR, 1988e)
(G) Forest Management Guide for Cultural Heritage Values (MNR, 2007c)
(G) Timber Management Guidelines for the Provision of Moose Habitat (MNR, 1988f)
(G) Forest Management Guidelines for the Provision of White-tailed Deer Habitat (Voigt et al., 1997)
(G) Guidelines for Providing Furbearer Habitat in Timber Management (MNR, 1986d)
(G) Habitat Management Guidelines for Bats in Ontario (Gerson, 1984)
(G) Habitat Management Guidelines for Birds of Ontario Wetlands Including Marshes, Swamps, and Fens or Bogs of Various Types, Excluding Waterfowl (James, 1985)
(G) Habitat Management Guidelines for Waterfowl in Ontario (Hickie, 1985)
(G) Management Guidelines for the Protection of Heronries in Ontario (Bowman and Siderius, 1984)
(G) Habitat Management Guidelines for Cavity Nesting Birds (James, 1984a)
(G) Forest Management Guidelines for the Provision of Pileated Woodpecker Habitat (Naylor et al., 1996)
(G) Habitat Management for Ontario's Forest Nesting Accipters, Buteos, and Eagles (James, 1984b)
(G) Hawk Guide for Ministry of Natural Resources Field Personnel (Szuba and Bell, 1991)
(G) Forest Management for the Protection of Osprey Nests in Ontario (MNR, 2006g)
(G) Bald Eagle Habitat Management Guidelines (MNR, 1987a)
(G) Golden Eagle Habitat Management Guidelines (MNR, 1987b)
(G) Peregrine Falcon Habitat Management Guidelines (MNR, 1987c)
(G) Habitat Management Guidelines for Warblers of Ontario's Northern Coniferous Forests, Mixed Forests or Southern Hardwood Forests (James, 1984c)
(G) Management Guidelines for Forestry and Resource Based Tourism (Forest Management Branch, 2001)
(O) Tourism and Forestry Industry Memorandum of Understanding (Government of Ontario, 2001)

Guidelines and manuals to create the desired future forest condition
(G) A Silvicultural Guide to Managing for Black Spruce, Jack Pine and Aspen on Boreal Ecosites in Ontario [three volumes] (MNR, 1997c,d,e)
(G) A Silvicultural Guide for the Tolerant Hardwood Forest in Ontario (MNR, 1998d)
(G) A Silvicultural Guide for the Great Lakes St. Lawrence Conifer Forest in Ontario (MNR, 1998e)
(G) A Silvicultural Guide to Managing Southern Ontario Forests (Strobl and Bland, 2000)
(G) A Silvicultural Guide to Managing Spruce, Fir, Birch and Aspen Mixedwoods in Ontario's Boreal Forest (MNR, 2003b)
(G) Silvicultural Effectiveness Monitoring Guidelines (MNR, 2001c)
(G) Aerial Spraying for Forest Management (MNR, 1991)
(G) Prescribed Burn Planning Manual (MNR, 1997f)
(G) Ontario Tree Marking Guide (MNR, 2004d)
(G) Boreal Mixedwood Notes Series (MNR, 2000c)
(G) Forest Management Guidelines for the Protection of the Physical Environment (Archibald et al., 1997)
(O) Field Guide to Forest Ecosystems of Northeastern Ontario (Taylor et al., 2000)
(O) Field Guide to the Forest Ecosystem Classification for Northwestern Ontario (Sims et al., 1997)
(O) Field Guide to Forest Ecosystems of Central Ontario (Chambers et al., 1997)
(O) Forest Plants of Central Ontario (Chambers et al., 1996)
(O) Forest Raptors and Their Nests in Central Ontario: A Guide to Stick Nests and Their Users (Szuba and Naylor, 1998)
(O) Sphagnum Species in Northwestern Ontario: A Field Guide to Their Identification (Sims and Baldwin, 1996)
(O) A Field Guide to the Wetland Ecosystem Classification of Northwestern Ontario (Harris et al., 1996)
(O) Field Guide to the Common Forest Plants in Northwestern Ontario (Baldwin and Sims, 1997)
(O) Terrestrial and Wetland Ecosites of Northwestern Ontario (Racey et al., 1996)
(O) Ecological Land Classification for Southern Ontario: First Approximation and its Application (Lee et al., 1998)
(O) Significant Wildlife Habitat Technical Guide (Coleman et al., 2000)

Administrative and technical procedures used to achieve the desired future forest condition
(G) Selected Wildlife and Habitat Features: Inventory Manual for Use in Forest Management Planning (Ranta, 1998)
(G) Forest Operations and Silvicultural Manual (MNR, 1995c)

6.13 Restricted Access Areas

Image by D. Paleczny

Introduction

Most Restricted Access Areas delineated, described, and managed in accordance with MNR's District Land Use Guidelines (e.g., MNR, 1983b, c) were incorporated into *Ontario's Living Legacy Land Use Strategy* land use areas as Enhanced Management Areas (EMA) in the Recreation or Remote Access category. The area-specific policies were then incorporated into the *Crown Land Use Policy Atlas*. A few Restricted Access Areas have not been incorporated into EMAs, and are currently designated as General Use Areas, although the restricted access policies have been retained. In MNR's Bancroft District, 2,405 ha are subject to a Restricted Access Area (RA1) overlay in General Use Area G340 – Multiple Resource Use Management Area. In MNR's Parry Sound, Sudbury, and North Bay Districts, 372 ha are subject to a Restricted Access Area (RA2) overlay in General Use Area G359 – Multiple Resource Use Management Area (Fig. 6-39).

Legislation and Policy Basis

These areas are managed in accordance with the policies outlined in the *Crown Land Use Policy Atlas*. These policies originated in the *Ontario's Living Legacy Land Use Strategy* (MNR, 1999a) and District Land Use Guidelines (e.g., MNR, 1983b, c).

Protection Goal and/or Objectives

These areas are in a General Use Area designation, and thus a broad range of resource and recreational activities is permitted. The Restricted Access overlay policies indicate that these areas are managed to provide continued opportunities for high quality recreation in a relatively remote setting and with opportunities for resource extraction (MNR, 1983b, c).

Selection Criteria

Restricted Access Areas are relatively inaccessible and provide quality recreational opportunities (MNR, 1983b).

Management Objectives and/or Guidelines

Restricted Access Areas are managed in accordance with management guidelines and policies outlined in the Crown Land Use Policy Atlas (MNR, 2006h, i) (Table 6-19).

Degree of Protection for Restricted Access Areas and the IUCN Protected Area Management Categories: A Preliminary Assessment

Though specific measures are taken to protect social, cultural, and natural values, these areas are not principally dedicated to the protection of biodiversity in perpetuity, and are not 'fully protected'. Therefore, Restricted Access Areas do not qualify for inclusion in the current IUCN protected areas classification system.

Key Contact(s)

Forests Branch
Ministry of Natural Resources
Suite 400 Roberta Bondar Place, 70 Foster Dr.,
Sault Ste. Marie, Ontario, P6A 6V5, Canada
Phone: 705-945-6661
Fax: 705-945-6667

Bancroft District Office
Ministry of Natural Resources
P.O. Box 500, Highway 28 South
Bancroft, Ontario, K0L 1C0, Canada
Phone: 613-332-3940
Fax: 613-332-0608

Sudbury District
Ministry of Natural Resources
Suite 5, 3767 Highway 69 South
Sudbury, Ontario, P3G 1E7, Canada
Phone: 705-564-7823
Fax: 705-564-787

Figure 6-39. Restricted Access Areas managed as General Use Areas in relation to Ecoregion boundaries.

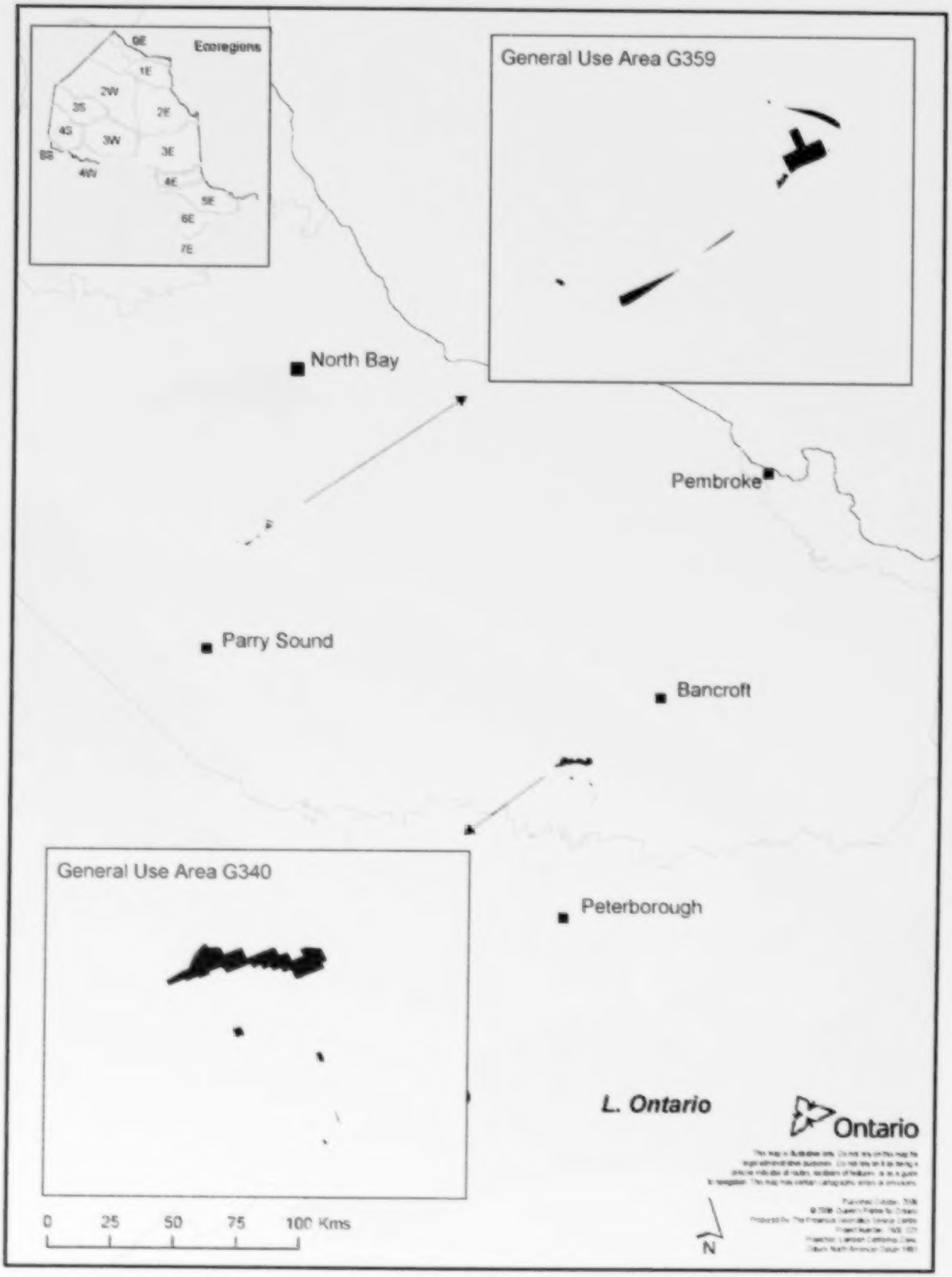


Table 6-19. Management direction for Restricted Access Area overlays in General Use Areas.

Land Use Activity	Bancroft District (MNR, 2006h) G340/RA1		Parry Sound and North Bay Districts (MNR, 2006i) G359/RA2	
	Permitted	Guidlines	Permitted	Guidelines
		Land and Resource Management Activities		
Development and Maintenance of Existing Roads	Yes		Yes	
New Road Development and Maintenance	No	No new roads will be permitted except those absolutely essential for resource extraction and such roads will not be open to the public.	Yes	Roads constructed for resource management and extraction will meet the following criteria: • Access to each of the 4 remote areas will include no more than one primary access road. All other roads will be winter haul roads or temporary summer roads; and • Roads which completely cross a remote area, or which cross major river systems within a remote area, will not be permitted. That is, no new north/south or east/west road linkages are permitted.
		Recreation Activities and Facilities		
Crown Land Recreation	—	—	Yes	Public access for recreation purposes will be restricted to existing trails (and present means of access), and to boat-in, fly-in, or walk-in.
Public Use of Existing Roads	Yes	—	Yes	—
Public Use of New Roads	No	No new roads will be permitted except those absolutely essential for resource extraction and such roads will not be open to the public.	No	New roads established for resource management and extraction will be closed to public recreational use.

Source: MNR (2006h, i)

Image by L.S. Withers

6.14 The Niagara Escarpment

Introduction

The Niagara Escarpment extends 725 km from Queenston on the Niagara River north to the islands in Lake Huron near Tobermory on the Bruce Peninsula (Fig. 6-40) (Canadian Biosphere Reserves Association and Man and Biosphere, 2007). Encompassing 190,270 ha, the Niagara Escarpment contains significant geological and ecological features, is the source of some of Ontario's principal rivers and streams, and provides many recreational opportunities (NEC, 2005). The Niagara Escarpment was designated a Biosphere Reserve in February 1990 by the UNESCO MAB Committee (see Biosphere Reserves in Section 4.3 on page 101).

Most of the Niagara Escarpment is privately owned, including a majority of its ecologically sensitive core properties. Other landowners include federal, provincial, and municipal governments. The Niagara Escarpment Parks and Open Space System is owned and managed by seven Conservation Authorities, the Ministry of Natural Resources, the Ontario Heritage Trust, the federal Department of the Environment – Parks Canada, the St. Lawrence Seaway Authority, the Niagara Parks Commission, the Royal Botanical Gardens, municipalities, and other organizations capable of managing areas in the public interest (NEC, 2005). In addition, 21 municipalities, two cities, and seven counties or regional municipalities have a direct interest in the Niagara Escarpment (NEC, 2004).

In recognition of the natural and cultural values of the Niagara Escarpment, the Ontario Government sponsored the *Niagara Escarpment Planning and Development Act*, which led to the creation of the *Niagara Escarpment Plan* in 1985 and the revised plan in 2005 (NEC, 2005). The plan is structured according to land-use policies for seven land use designations, development criteria, and the Niagara Escarpment Parks and Open Space system. Implementation of the *Niagara Escarpment Plan* is guided by the Niagara Escarpment Commission (NEC), which is comprised of representatives from the Regions and Counties on the Niagara Escarpment and from the public-at-large (NEC, 2007a).

Image by P.A. Gray

Legislation and Policy Basis

The purpose of the *Niagara Escarpment Planning and Development Act* is "*to provide for the maintenance of the Niagara Escarpment and land in its vicinity substantially as a continuous natural environment, and to ensure only such development occurs as is compatible with that natural environment*" (Statutes of Ontario, 1990c). This statute provides the legislative basis for a planning process to ensure that the Niagara Escarpment is protected.

The *Niagara Escarpment Plan*, approved in 1985 and revised in 2005, was prepared under the auspices of the *Niagara Escarpment Planning and Development Act*, and serves as a framework for development and implementation of objectives and associated policies (BTA, 1998a; NEC, 2005). Other legislation employed to manage Niagara Escarpment lands and waters include the *National Parks Act*, the *Provincial Parks and Conservation Reserves Act*, the *Public Lands Act*, the *Planning Act*, the *Conservation Authorities Act*, the *Aggregate Resources Act*, and the *Fish and Wildlife Conservation Act*.

In addition, management of the Niagara Escarpment is linked to the *Greenbelt Act* and the *Greenbelt Plan*. For example, the 2005 *Greenbelt Plan* identifies agricultural land and ecological features and processes requiring protection from urban development in the Greenbelt planning area, which includes the Niagara Escarpment planning area, the *Oak Ridges Moraine Conservation Plan* area (See Section 6.15 on page 266), the Protected Countryside (NEC, 2005), and the *Lake Simcoe Protection Plan* area.

Protection Goal and Objectives

Objectives of the *Niagara Escarpment Plan* are to:

- Protect unique ecologic and historic areas.
- Maintain and enhance the quality and character of natural streams and water supplies.
- Provide adequate opportunities for outdoor recreation.
- Maintain and enhance the open landscape character of the Niagara Escarpment in so far as is possible by such means as compatible farming or forestry and by preserving the natural history.
- Ensure that all new development is compatible with the purpose of the plan.
- Provide for adequate public access to the Niagara Escarpment.
- Support municipalities within the *Niagara Escarpment Plan* area in their delivery of the planning functions conferred upon them by the *Planning Act* (NEC, 2005).

The primary objectives of the seven land use designations in the *Niagara Escarpment Plan* are:

Escarpment Natural Area:

- Maintain the most natural escarpment features, stream valleys, wetlands, and related significant natural areas and associated cultural heritage features.
- Encourage compatible recreation, conservation, and education activities.
- Maintain and enhance the landscape quality of Niagara Escarpment features.

Escarpment Protection Area:

- Maintain and enhance the open landscape character of Niagara Escarpment features.
- Provide a buffer to prominent Niagara Escarpment features.
- Maintain natural areas of regional significance and cultural heritage features.
- Encourage agriculture, forestry, and recreation.

Escarpment Rural Area:

- Maintain scenic values of lands in the vicinity of the Niagara Escarpment.
- Maintain the open landscape character by encouraging the conservation of the traditional cultural landscape and cultural heritage features.
- Encourage agriculture and forestry and provide for compatible rural land uses.
- Provide a buffer for the more ecologically sensitive areas of the Niagara Escarpment.
- Provide for the designation of new mineral resource extraction areas that can be accommodated by an amendment to the *Niagara Escarpment Plan*.

Minor Urban Centre:

- Recognize, maintain, and enhance existing rural settlements or provide concentration points for development and growth in rural areas.
- Ensure that cumulative growth in minor urban centres and any associated development can be accommodated and serviced in a manner that is environmentally sustainable over the long term.
- Maintain and enhance the cultural heritage features of these settlement areas.
- Ensure that new development is compatible with the identity and traditional character of Minor Urban Centres.
- Generally direct the growth of villages away from Escarpment Natural Areas and Escarpment Protection Areas into Escarpment Rural Areas in a logical manner with the least possible environmental and agricultural disruption.
- Ensure that any growth will be in accordance with a municipal official plan and/or secondary plan which is not in conflict with the Niagara Escarpment Plan.

Urban Area:

- The objective of the urban area designation is to minimize the impact and further encroachment of urban growth on the Niagara Escarpment environment.

Escarpment Recreation Area:

- Minimize any adverse effects of recreational activities on the Niagara Escarpment environment.
- Provide areas where new recreational and associated development can be concentrated around established, identified, or approved downhill ski centres.
- Provide areas where new recreational and associated development can be concentrated around established, identified, or approved lakeshore cottage areas in Grey and Bruce Counties.

- Recognize the importance of the Four Seasons Craigleith-Camperdown Recreation Area to the tourism sector of Ontario's economy.
- Provide for the development of new ski centres or other recreational areas.
- Ensure that future recreational development is compatible with cultural and natural heritage values (e.g., fisheries and wildlife habitats) in the area.

Mineral Resource Extraction Area:

- Designate licensed mineral resource extraction areas.
- Minimize the impact of mineral extraction operating on the Niagara Escarpment environment.
- Provide for areas where new pits and quarries may be established.
- Ensure that after uses and rehabilitation are compatible with the applicable Plan designation, the surrounding environment, and existing uses.
- Encourage, where possible, the integration of rehabilitated pits and quarries into the Parks and Open Spaces System (NEC, 2005).

The areas encompassed in the Parks and Open Space system are protected by many agencies, organizations, and individuals. The objectives developed for these areas are to:

- Protect unique ecological and historical areas.
- Provide adequate opportunities for outdoor education and recreation.
- Provide for adequate public access to the Niagara Escarpment.
- Complete a public system of major parks and open space through additional land acquisition and park and open space planning.
- Secure a route for the Bruce Trail.
- Maintain and enhance the natural environment of the Niagara Escarpment.
- Support tourism by providing opportunities on public land for discovery and enjoyment by Ontario's residents and visitors.
- Provide a common understanding and appreciation of the Niagara Escarpment (NEC, 2005).

The Bruce Trail is an essential component of the Niagara Escarpment Parks and Open Space system because it links parks, open space areas, natural features, access points, and overnight rest areas with a corridor. The long-term goal is to secure a permanent corridor for the Bruce Trail along its entire length (NEC, 2005).

Selection Criteria

The Niagara Escarpment planning area is defined by the *Niagara Escarpment Planning and Development Act*. Lands within the control of the NEC are zoned in accordance with the *Niagara Escarpment Plan*. A variety of agencies and organizations designate lands within their jurisdiction for protection as National Parks, Provincial Parks, Municipal Parks, and reserves. The criteria for each of the seven land use designations as outlined in the *Niagara Escarpment Plan* are:

Escarpment Natural Area:

- Niagara Escarpment slopes and related landforms associated with the underlying bedrock, which are in a relatively natural state.
- Forest lands that abut the escarpment. The designation includes forested lands 300 metres back from the brow of the Niagara Escarpment slope (e.g., the Bruce Peninsula).
- The most significant Areas of Natural and Scientific Interest (earth and life science).
- The most significant stream valleys and wetlands associated with the Niagara Escarpment.

Escarpment Protection Area:

- Niagara Escarpment slopes and related landforms where existing land uses have significantly altered the natural environment (e.g., agricultural lands or residential development).
- Areas in close proximity to escarpment slopes which visually are part of the landscape units.
- Regionally Significant Areas of Natural and Scientific Interest (life science).

Escarpment Rural Area:

- Minor Niagara Escarpment slopes and landforms.
- Lands in the vicinity of the escarpment necessary to provide an open landscape, and/or are of ecological importance to the environment of the Niagara Escarpment.

Image by P.A. Gray

Minor Urban Centre:

- Minor Urban Centres are identified in the *Niagara Escarpment Plan*; additions require amendments to the Plan.
- Development and growth objectives have been established.

Urban Area:

- Includes urban development and committed urban areas on or adjacent to the Niagara Escarpment as provided for in municipal official plans and/or secondary plans.

Escarpment Recreation Area:

- Include established, identified, or approved recreation areas (e.g., ski centres, lakeshore cottage areas, resort development, and the Craigleith-Camperdown Recreation Area).

Mineral Resource Extraction Area:

- Include existing license areas (NEC, 2005).

Management Objectives and/or Guidelines

The *Niagara Escarpment Plan* was completed in response to the need to manage for increasing threats (e.g., aggregate mining and increasing urbanization) to the Niagara Escarpment's ecosystems. These and other land uses are now managed more effectively under the auspices of the *Niagara Escarpment Plan* (NEC, 2005, 2007b). Land-use policies established for the seven land use designations include:

Escarpment Natural Area: The Escarpment Natural Areas encompass the most significant natural and scenic areas of the escarpment, including relatively undisturbed stream valleys, wetlands, and forested ecosystems and areas that encompass important plant and animal habitats, geological features, and cultural heritage values.

Escarpment Protection Area: The Escarpment Protection Areas are established to buffer important Escarpment Natural Areas and natural areas of regional significance. Often these designations include agricultural and residential areas.

Minor Urban Centre: Rural settlements, villages, and hamlets throughout the Niagara Escarpment planning area are included in the Minor Urban Centre designation.

Urban Area: The Urban Area designation includes areas with significant development. In some areas, the Niagara Escarpment remains largely undeveloped, although it is surrounded by existing development (e.g., Hamilton). In other areas, urban growth has encroached substantially on the Niagara Escarpment (e.g., Wiarton).

Escarpment Rural Area: Escarpment Rural Areas are an essential component of the Niagara Escarpment corridor, including portions of the Niagara Escarpment and lands in its vicinity. They provide a buffer to the more ecologically sensitive areas of the Niagara Escarpment.

Escarpment Recreation Area: Escarpment Recreation Areas comprise existing or potential recreational areas that include seasonal and permanent residences.

Mineral Resource Extraction Area: Mineral Resource Extraction Areas include pits and quarries licensed pursuant to the *Aggregate Resources Act* and areas where mineral resource extraction may be permitted subject to the policies of the *Niagara Escarpment Plan*.

In addition to the seven land-use designations, publicly owned land is managed through a Parks and Open Space System. The Niagara Escarpment Parks and Open Space System is a framework in the *Niagara Escarpment Plan* designed to establish and coordinate publicly owned lands on the Niagara Escarpment and the Bruce Trail. The system contains 131 existing and proposed park and open space areas (NEC, 2005). In addition to National Parks and St. Lawrence Seaway properties, these areas are organized into six classes (Table 6-20). The six classes as outlined by the *Niagara Escarpment Plan* (NEC, 2005) include:

Nature Reserve: Nature Reserves are the most significant and distinctive natural areas and landforms found on the Niagara Escarpment. They serve to protect selected Areas of Natural and Scientific Interest. Permitted management practices and uses in a Nature Reserve ensure that the features and values for which the site was established remain protected in perpetuity. Access to these areas is not widely promoted and activities are limited to those which advance scientific understanding and education (e.g., scientific research, natural history interpretation, and nature trails or the Bruce Trail).

Natural Environment Area: Natural Environment Areas comprise a variety of outstanding natural features, historical resources, and landscapes. Natural Environment Areas provide opportunities for high quality recreation and for the protection of important natural and cultural features. Activities can range from backcountry hiking in the interior of these areas to car-camping and day-use activities in developed or accessible locations.

Recreation Areas: Recreation Areas encompass natural and developed areas that provide a variety of outdoor recreation opportunities. Management and development of resources is permitted to provide the recreational and associated facilities that support a variety of activities, including day-use and/or overnight camping.

Historical Areas: Historical Areas protect assets representative of the Niagara Escarpment's archaeological and historical heritage. Facility development on these lands is oriented primarily to the protection, enhancement, and interpretation of the archaeological or historical characteristics of the site.

Table 6-20. The Niagara Escarpment Park and Open Space System classification.

Site	Area (ha)
Nature Reserve	**4,839.0**
Natural Environment	**11,244.9**
Recreation	**951.0**
Historical	**233.0**
Escarpment Access*	**992.4**
Resource Management	**7,256.0**
National Parks	**26,704.0**
St. Lawrence Seaway	**294.0**
Total	**52,514.3**

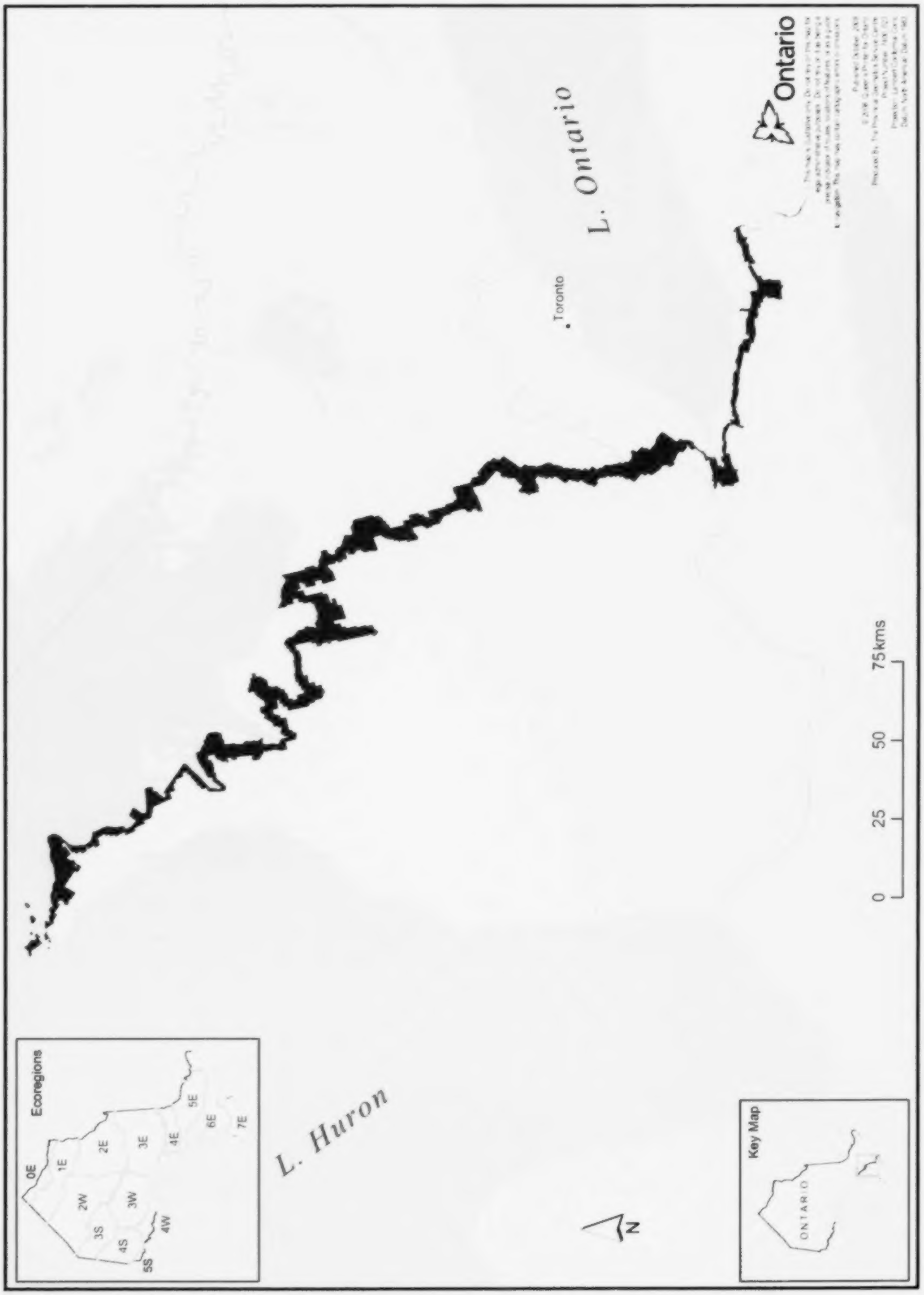
* The area of Devil's Monument (Escarpment Access) is not available at the time of writing.

Source: NEC (2005).

Escarpment Access Areas: Escarpment Access Areas complement the larger, and in some cases, more developed parks or open space areas by providing opportunities for public access at appropriate points along the Niagara Escarpment. Normally, Escarpment Access Areas are small and provide modest facilities to support day-use activities at scenic viewing sites, rest areas, trailheads, picnic sites, fishing areas, beaches, and other points of interest. New Escarpment Access Areas may be established by the Ministry of Natural Resources, Conservation Authorities, or on the initiative of local municipalities or organizations such as service clubs.

Resource Management Areas: Resource Management Areas include public lands that are managed primarily to provide resource-related benefits, including recreation opportunities, the protection of important natural and cultural resources, flood control, and resource products (e.g., fish, wildlife, and timber). In most cases, these areas are used more intensively than other types of areas in the classification (NEC, 2005).

Figure 6-40. Niagara Escarpment Commission Planning Area delineated by the Niagara Escarpment Plan in relation to Ecoregion boundaries.



Each park and open space area is managed according to a zone system.

- **Nature Reserve Zone:** Includes significant natural features or areas that require careful management to ensure the long-term protection of natural values.
- **Natural Zone:** Includes aesthetic landscapes in which a minimum of development is permitted to support low to moderate intensity recreational activities.
- **Historical Zone:** Includes significant archaeological or historical features or areas that require management designed to ensure the long-term protection of the significant values.
- **Access Zone:** Serves as a staging area (e.g., trailheads and parking lots) where minimal facilities support the use of Nature Reserve Zones and relatively undeveloped Natural and Historical Zones.
- **Development Zone:** Provides the main access to the park and open space as well as facilities and services to support available recreational activities (e.g., campgrounds, picnic areas, and maintenance facilities).
- **Resource Management Zone:** Provides for intensive resource management (e.g., forest, fisheries, water, wildlife, and multiple-use management) (NEC, 2005).

It is important to note that exceptions to this classification policy include lands held by the Department of Canadian Heritage – Parks Canada, the St. Lawrence Seaway Authority, and lands acquired specifically for the Bruce Trail corridor.

A monitoring program in support of work to regularly report on the effectiveness of policies, decisions, and practices in the Plan is being developed and implemented. Monitoring will occur at local to regional scales and will employ selected indicators of change. Monitoring information will be used in the day-to-day implementation of the Plan and to evaluate and refine management and planning policies (NEC, 2005).

The Degree of Protection for the Niagara Escarpment Plan Area and the Corresponding IUCN Protected Area Management Category: A Preliminary Assessment

Many *Niagara Escarpment Plan* and Parks and Open Space System areas are 'fully protected' because protection is the primary objective, the commitment is legislated, they are protected year-round in perpetuity, and they exclude industrial activities and large-scale developments. For example, the *Niagara Escarpment Planning and Development Act*, the *Planning Act*, the *Provincial Policy Statement*, and municipal official plans provide sufficient legal and other effective means of protection for those areas that are actually designated to protect biodiversity and natural features. Although a site-by-site assessment is needed, 'fully protected' areas in the *Niagara Escarpment Plan* area and Parks and Open Space System generally qualify as IUCN Categories Ia, II, III, or IV protected areas.

The overall intent for the management of the *Niagara Escarpment Plan* area is consistent with many of the criteria/standards developed for Category V protected areas by the IUCN and affiliated organizations (see Dudley, 2008; Phillips, 2002; Swinnerton and Buggey, 2004). However, the natural heritage areas in the Plan area do not meet the 75% rule recommended by IUCN (i.e., the primary objective of nature conservation should apply to 75% of the protected area; Dudley, 2008:35). Given that the 75% rule is not formally prescriptive, given the goals and objectives established for the area as a Biosphere Reserve, and given that Category V criteria do recognize a holistic, ecologically-oriented approach to management (including important terrestrial 'greenway' and aquatic 'blueway' linkages over large areas), there may be merit in recognizing the *Niagara Escarpment Plan* area in concert with the Oak Ridges Moraine, the Lake Simcoe Watershed, and the Greenbelt as a Category V protected area.

Key Contact(s)

Niagara Escarpment Commission
232 Guelph Street
Georgetown, Ontario, L7G 4B1
Telephone: 905-877-5191
Fax: 905-873-7452
Website: www.escarpment.org

6.15 Oak Ridges Moraine

The Oak Ridges Moraine is characterized by a 160 km irregular ridge of elevated terrain encompassing about 190,000 ha stretching from the Trent River in the east to the Niagara Escarpment in the west (Fig. 6-41), and is within the boundaries of Ecodistrict (6E-8) in southern Ontario. The *Oak Ridges Moraine Conservation Act* was passed in 2001 and establishes the *Oak Ridges Moraine Conservation Plan* (O. Reg. 140/02). The *Oak Ridges Moraine Conservation Plan* is an ecologically-based plan that provides land use and resource management direction for the land and water within the Moraine (MMAH, 2002). The *Oak Ridges Moraine Conservation Plan*'s vision is that of a "*…continuous band of green rolling hills that provides form and structure to south-central Ontario, while protecting the ecological and hydrological features and functions that support the health and well-being of the region's residents and ecosystems*" (MMAH, 2002).

Image by P. Kor

Legislation and Policy Basis

The *Oak Ridges Moraine Conservation Act of 2001* provides the authority for the establishment of the *Oak Ridges Moraine Conservation Plan*, which is an integral part of the *Greenbelt Plan*. The *Greenbelt Plan* was established in 2005 under the *Greenbelt Act*, (see Section 6.16 on page 270). The *Greenbelt Plan* identifies protected areas containing agricultural assets and ecosystems. The *Greenbelt Plan* area includes the *Niagara Escarpment Plan* area (See Section 6.14 on page 259), the *Oak Ridges Moraine Conservation Plan* area, and the Protected Countryside (NEC, 2005). All land-use decisions made under the *Planning Act* or the *Condominium Act* are required to conform to the policies of the *Oak Ridges Moraine Conservation Plan*.

Protection Goal and Objectives

The objectives of the *Oak Ridges Moraine Conservation Plan* are to:

- Protect the ecological and hydrological integrity of the Oak Ridges Moraine area
- Ensure that the only land and resource uses allowed maintain, improve, or restore the ecological and hydrological functions of the Oak Ridges Moraine area
- Maintain, improve, or restore all the elements, including the quality and quantity of its water and its other resources that contribute to the ecological and hydrological functions of the Oak Ridges Moraine area.
- Ensure that a continuous natural landform and environment for present and future generations is maintained throughout the Oak Ridges Moraine area.
- Provide for land and resource uses, and development compatible with the objectives of the *Oak Ridges Moraine Conservation Plan*.
- Provide for continued development within existing urban settlement areas and recognize existing rural settlements.
- Provide a continuous recreational trail that is accessible to all.
- Provide other public recreational access.
- Provide for any additional prescribed objectives (MMAH, 2002).

The *Oak Ridges Moraine Conservation Plan* divides the Oak Ridges Moraine into four land-use designations (Table 6-21):

- **Natural Core Areas:** These areas protect lands with the greatest concentrations of key natural heritage features, which are critical to maintaining the

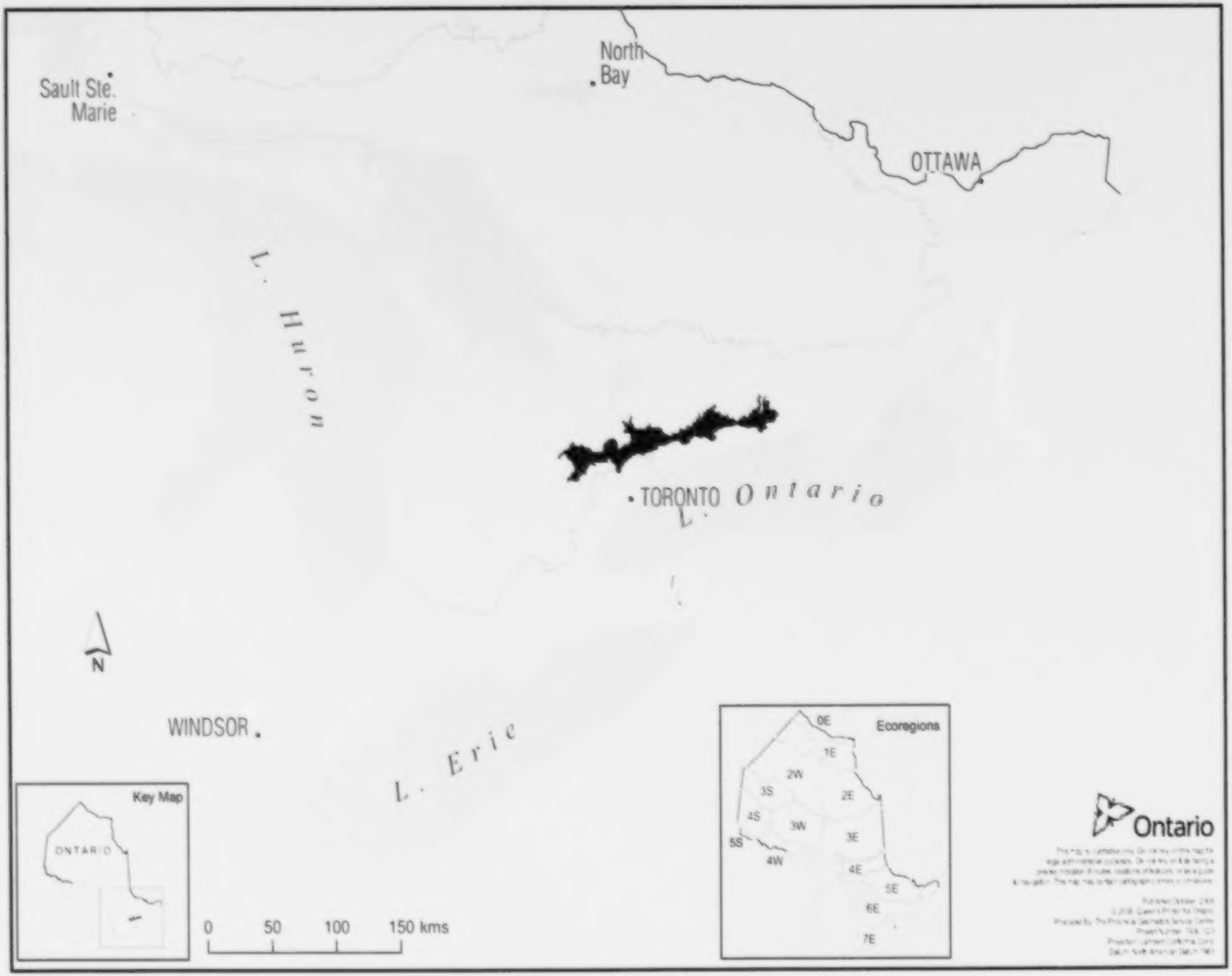


Figure 6-41 The Oak Ridges Moraine in relation to Ecoregion boundaries.

integrity of the Moraine as a whole. Only existing uses and very restricted new resource management, agricultural, low intensity recreational, home businesses, transportation, and utility uses are allowed in these areas.

- **Natural Linkage Areas:** Natural Linkage Areas protect critical natural and open space linkages between the Natural Core Areas and along rivers and streams. Only existing uses and very restricted new resource management, agricultural, low intensity recreational, home businesses, transportation, and utility uses are allowed in these areas. In addition, aggregate operations are permitted in some areas.
- **Countryside Areas:** Countryside Areas provide an agricultural and rural transition and buffer between the Natural Core Areas and Natural Linkage Areas and the urbanized Settlement Areas. Prime agricultural areas as well as natural features are protected. Most of the uses typically allowed in agricultural and other rural areas are permitted in Countryside Areas.
- **Settlement Areas:** Settlement Areas encompass existing communities designed to meet the needs and values of residents. Urban uses and development as set out in municipal official plans are permitted in these areas (MMAH, 2002).

Table 6-21. The Oak Ridges Moraine land use designations.

Land Use Designations		Area (ha)
Natural Core Areas		72,200
Natural Linkage Areas		45,600
Countryside Areas		57,000
Settlement Areas		15,000
	Total	190,000

Source: (MMAH, 2002)

Image by P.A. Gray

Selection Criteria

Key natural heritage and hydrologically sensitive features of the Oak Ridges Moraine area are described in the *Oak Ridges Moraine Conservation Act*, and identified in the *Oak Ridges Moraine Conservation Plan*. Key natural heritage and hydrological features include:

I. Natural Heritage:

- Wetlands.
- Significant portions of endangered, rare, and threatened species habitat.
- Fish habitat.
- Areas of Natural and Scientific Interest.
- Significant valleylands.
- Significant woodlands.
- Significant wildlife habitat.
- Sand barrens, savannas, and tallgrass prairies.

II. Hydrologic Features:

- Permanent and intermittent streams.
- Wetlands.
- Kettle lakes.
- Seepage areas and springs (MMAH, 2002).

Management Objectives and/or Guidelines

The *Oak Ridges Moraine Conservation Act* and the *Oak Ridges Moraine Conservation Plan* establish the framework for the protection of the Oak Ridges Moraine. The policies of the *Oak Ridges Moraine Conservation Plan* outline permitted uses in each land-use designation (MMAH, 2002). In case of a conflict with municipal official plans, the policies in the *Oak Ridges Moraine Conservation Plan* prevail (Statutes of Ontario, 2001b).

Technical guides have been prepared to assist with the implementation of the *Oak Ridges Moraine Conservation Plan*'s policies on natural heritage features, minimum areas of influence, minimum vegetation protection zones, and for the preparation of watershed plans, water budgets, and water conservation plans (MMAH, 2002).

The Degree of Protection for the Oak Ridges Moraine and the Corresponding IUCN Protected Area Management Category: A Preliminary Assessment

A number of Natural Core Areas and Natural Linkage Areas on the Oak Ridges Moraine would likely qualify as 'fully protected' areas because protection is the primary objective, the commitment is legislated, they are protected year-round in perpetuity, and they exclude industrial activities and large-scale developments. These areas may qualify as IUCN Categories Ia, II, III, or IV protected areas. A site by site assessment would be required to determine the exact status.

Image by P.A. Gray

The overall intent for the management of the Oak Ridges Moraine as defined in the *Oak Ridges Moraine Act* and associated commitments is consistent with many of the criteria/standards developed for Category V protected areas by the IUCN and affiliated organizations (see Dudley, 2008 and Phillips, 2002). However, the natural heritage areas in the Oak Ridges Moraine planning area do not meet the 75% rule recommended by IUCN (i.e., the primary objective of nature conservation should apply to 75% of the protected area; Dudley, 2008:35). Given that the 75% rule is not formally prescriptive and given that Category V criteria do recognize a holistic, ecologically-oriented approach to management (including important terrestrial 'greenway' and aquatic 'blueway' linkages over large areas), there may be merit in recognizing the Oak Ridges Moraine area in concert with the Niagara Escarpment, the Greenbelt, and the Lake Simcoe Watershed as a Category V protected area.

Key Contact(s)

Provincial Planning Policy Branch
Ministry of Municipal Affairs and Housing
14th floor, 777 Bay Street
Toronto, Ontario
M5G 2E5
Telephone: 416-585-6014
Website: *www.mah.gov.on.ca/Page322.aspx*
E-mail: *greenbelt@ontario.ca*

6.16 The Greenbelt

Introduction

The Greenbelt encompasses 728,450 ha of lands and waters that stretch from the Niagara Peninsula in the west to Rice Lake in the east (Fig. 6-42). The Greenbelt area includes lands within the *Niagara Escarpment Plan*, the *Oak Ridges Moraine Conservation Plan*, the *Parkway Belt West Plan*, and lands designated as Protected Countryside (MMAH, 2005b).

The Protected Countryside (*Greenbelt Plan*) is comprised of an Agricultural System, a Natural System, and Settlement Areas. Prime agricultural lands, specialty crop lands, and rural areas comprise the Agricultural System, while the Natural System is comprised of lands and waters with natural heritage and hydrological features and functions. A diverse collection of towns, villages, and hamlets comprise the Settlement Areas. The *Greenbelt Plan* aims to enhance urban and rural areas and the quality of life of people who live and work in the Protected Countryside.

Legislation and Policy Basis

The *Greenbelt Act* (2005) provides for the establishment of the *Greenbelt Plan*, and requires all decisions on planning applications made under the *Ontario Planning and Development Act*, the *Planning Act*, or the *Condominium Act* to conform to the policies in the *Greenbelt Plan* (MMAH, 2005b; Statutes of Ontario, 2005). The *Greenbelt Plan* contains policies that provide protection for greenspace and for vibrant rural communities (MMAH 2005c). Specifically, the Greenbelt aims to protect ecologically sensitive and important areas as well as agricultural land, while simultaneously supporting agricultural production, recreational opportunities, and resource extraction (e.g., aggregates). The *Greenbelt Act* provides for a 10-year review (2015) to assess the effectiveness of Plan policies and to make amendments, if appropriate (MMAH, 2005c).

The *Greenbelt Plan* area includes the *Niagara Escarpment Plan* area (see Section 6.14 on page 259), the *Oak Ridges Moraine Conservation Plan* area (see Section 6.15 on page 266), and the Protected Countryside. Additional statutes used to protect natural heritage areas in the Greenbelt include the *Planning Act*, the *Oak Ridges Moraine Conservation Act*, the *Niagara Escarpment Planning and Development Act*, the *Fish and Wildlife Conservation Act*, the *National Parks Act*, the *Provincial Parks and Conservation Reserves Act*, the *Conservation Authorities Act, and the Lake Simcoe Protection Act*.

Protection Goal and/or Objectives

The vision for the Greenbelt includes a broad band of permanently protected land that:

- *"Protects against the loss and fragmentation of the agricultural land base and supports agriculture as the predominate land use.*
- *Gives permanent protection to the natural heritage and water resource systems that sustain ecological and human health and that form the environmental framework around which major urbanization in south-central Ontario will be organized.*
- *Provides for a diverse range of economic and social activities associated with rural communities, agriculture, tourism, recreation and resource uses"* (MMAH, 2005b:4).

The Greenbelt goals are designed to *"...enhance our urban and rural areas and overall quality of life by promoting the following matters within the Protected Countryside:*

1. *Agricultural protection.*
2. *Environmental protection.*
3. *Culture, recreation and tourism.*
4. *Settlement area.*
5. *Infrastructure and natural resources"* (MMAH, 2005b:5-6).

Selection Criteria

The Protected Countryside is comprised of an Agricultural System that provides a permanent land base for long-term agricultural production and associated economic activity. Many of the farms also contain valuable natural heritage features and hydrological functions that are important to ecosystem integrity and human health and well-being.

The Agricultural System is comprised of specialty crop areas that include the Holland Marsh and the Niagara Peninsula tender fruit and grape areas, prime agricultural areas, and rural areas (MMAH, 2005b:13).

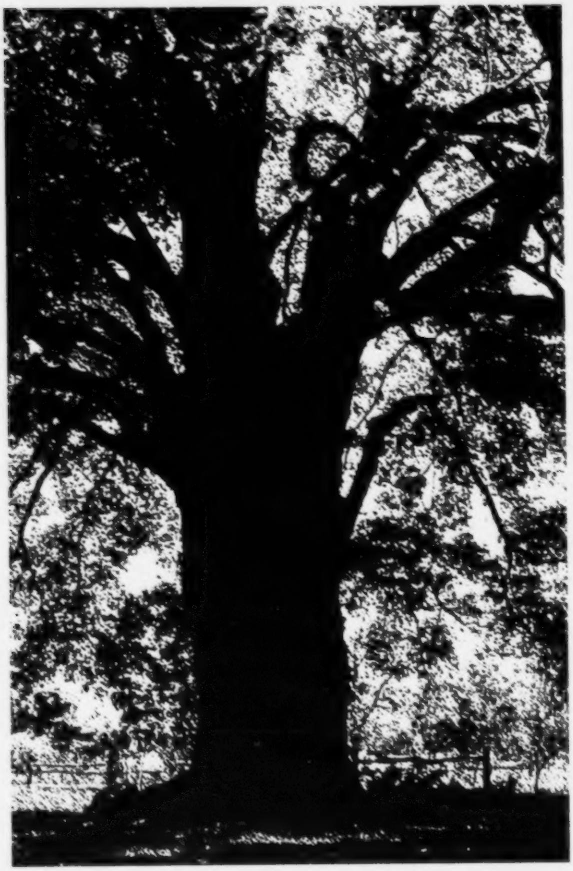


Image by P.A. Gray

The Natural Heritage System includes natural heritage features and areas linked by natural corridors necessary to maintain biological and geological diversity, natural functions, viable populations of indigenous species, and ecosystems (Fig. 6-43). Natural heritage features and designations that comprise the Natural Heritage System include:

- *"Significant habitat of endangered species, threatened species, and special concern species.*
- *Fish habitat.*
- *Wetlands.*
- *Life science Areas of Natural and Scientific Interest.*
- *Significant valleylands.*
- *Significant woodlands.*
- *Significant wildlife habitat.*
- *Sand barrens, savannahs, and tallgrass prairies.*
- *Alvars"* (MMAH, 2005b:18).

The Water Resource System is comprised of both ground and surface water features and their associated functions, such as primary recharge, head-water, and discharge areas. These provide the water resources necessary to sustain healthy aquatic and terrestrial ecosystems and human drinking water sources. Significant hydrological features include:

- *"Permanent and intermittent streams.*
- *Lakes (and their littoral zones).*
- *Seepage areas and springs.*
- *Wetlands"* (MMAH, 2005b:19).

In addition, the Greenbelt area includes lands and waters within the *Niagara Escarpment Plan* area, the *Oak Ridges Moraine Conservation Plan* area, and the *Parkway Belt West Plan* area, and the *Lake Simcoe Water Protection Plan* watershed. The requirements of these Plans continue to apply in their respective areas and the policies of the Protected Countryside do not apply, with the exception of the Parkland, Open Space and Trails policies (Section 3.3 of the *Greenbelt Plan*) and the Natural System policies (Section 3.2) for the *Parkway Belt West Plan* area. However, in cases where an area on the Oak Ridges Moraine is not governed by the policies in the *Oak Ridges Moraine Conservation Plan*, it is deemed to be within the Protected Countryside and all *Greenbelt Plan* policies are applied.

Management Objectives and/or Guidelines

Three types of geographic-specific policies are applied to lands and waters located within the Protected Countryside Areas: Agricultural System, Natural System, and Settlement Areas. In addition, general policies including policies for Parkland, Open Space, and Trails are applied to the Protected Countryside. In fact, the Parkland, Open Space, and Trails policies are applied throughout the Greenbelt (MMAH, 2005b:12). It is important to note that the *"…Natural Heritage System is not a designation in and of itself with a list of permitted uses. Rather it functions as an overlay on top of prime agricultural and/or rural area designations contained in municipal official plans. As such, permitted uses are those set out within the prime agricultural area and rural area designations of municipal official plans, subject to the constraints of the Natural System"* (MMAH, 2005b:7).

The *Greenbelt Plan* builds on the policy framework provided in the *Provincial Policy Statement* and is implemented through municipal official plan policies and maps (MMAH, 2005b:42). The *Greenbelt Plan* must be read and interpreted in conjunction with other relevant land use planning regulations, policies, and/or standards. This includes the policies of the *Niagara Escarpment Plan*, the *Oak Ridges Moraine Conservation Plan*, and the *Parkway Belt West Plan*. In addition, the Government of Canada, Conservation Authorities, the Ministry of Natural Resources, and other agencies apply regulations and/or standards to lands and waters within the Greenbelt, including, but not limited to:

- The *Provincial Policy Statement*.
- Minister's zoning orders under the *Planning Act*.
- Other provincial land use plans.
- Lower and single-tier municipal official plans.
- Municipal zoning bylaws.
- Regulations provided in a variety of statutes, including the *Conservation Authorities Act*, the *Fish and Wildlife Conservation Act*, and the federal *Fisheries Act*.

In cases where multiple regulations or standards apply to a situation, the more specific provision(s) prevail (MMAH, 2005b:43).

The Degree of Protection for Greenbelt Areas and the Corresponding IUCN Protected Area Management Category: Preliminary Assessment

A number of sites on the Oak Ridges Moraine, on the Niagara Escarpment, in the Lake Simcoe Watershed, and in protected areas located throughout the Greenbelt may qualify as 'fully protected' areas because protection is the primary objective, the commitment is legislated, they are protected year-round in perpetuity, and they exclude industrial activities and large-scale developments. These areas may qualify as IUCN categories Ia, II, III, or IV protected areas. A site by site assessment would be required to determine the status of each area.

The overall intent for the management of the Greenbelt as defined in the *Greenbelt Act*, the *Greenbelt Plan*, and associated commitments is consistent with many of the criteria/standards developed for Category V protected areas by the IUCN and affiliated organizations (see Dudley, 2008 and Phillips, 2002). However, the natural heritage areas in the Greenbelt do not meet the 75% rule recommended by IUCN (i.e., the primary objective of nature conservation should apply to 75% of the protected area; Dudley, 2008:35). Given that the 75% rule is not formally prescriptive and given that Category V criteria do recognize a holistic, ecologically-oriented approach to management (including important terrestrial 'greenway' and aquatic 'blueway' linkages over large areas), there may be merit in recognizing the Greenbelt area in concert with the Niagara Escarpment, the Oak Ridges Moraine, and the Lake Simcoe Watershed as a Category V protected area.

Key Contact(s)

Provincial Planning Policy Branch
Ministry of Municipal Affairs and Housing
14th Floor, 777 Bay Street
Toronto, Ontario
M5G 2E3
Telephone: 416-585-6182
Website: *www.mah.gov.on.ca*

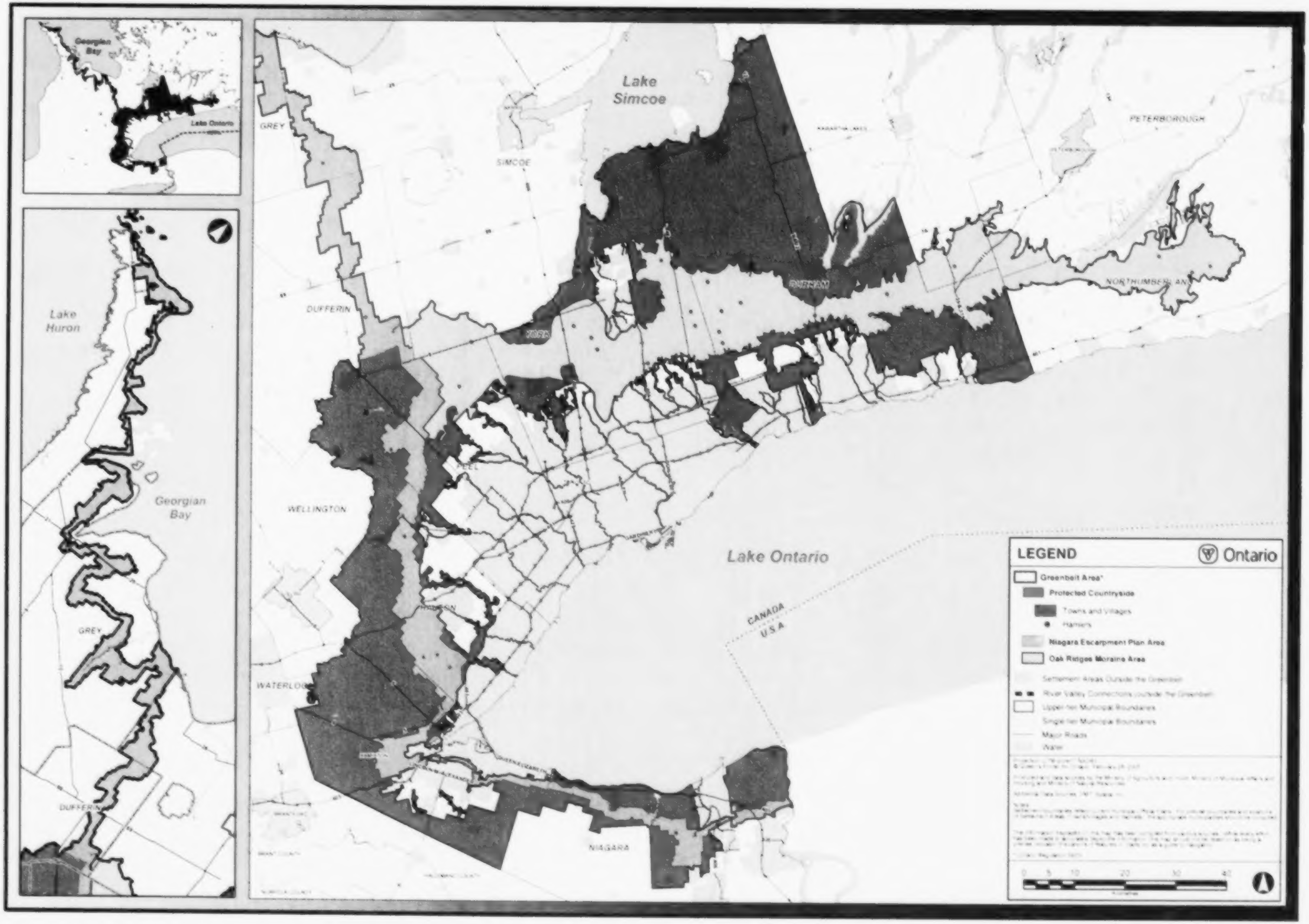
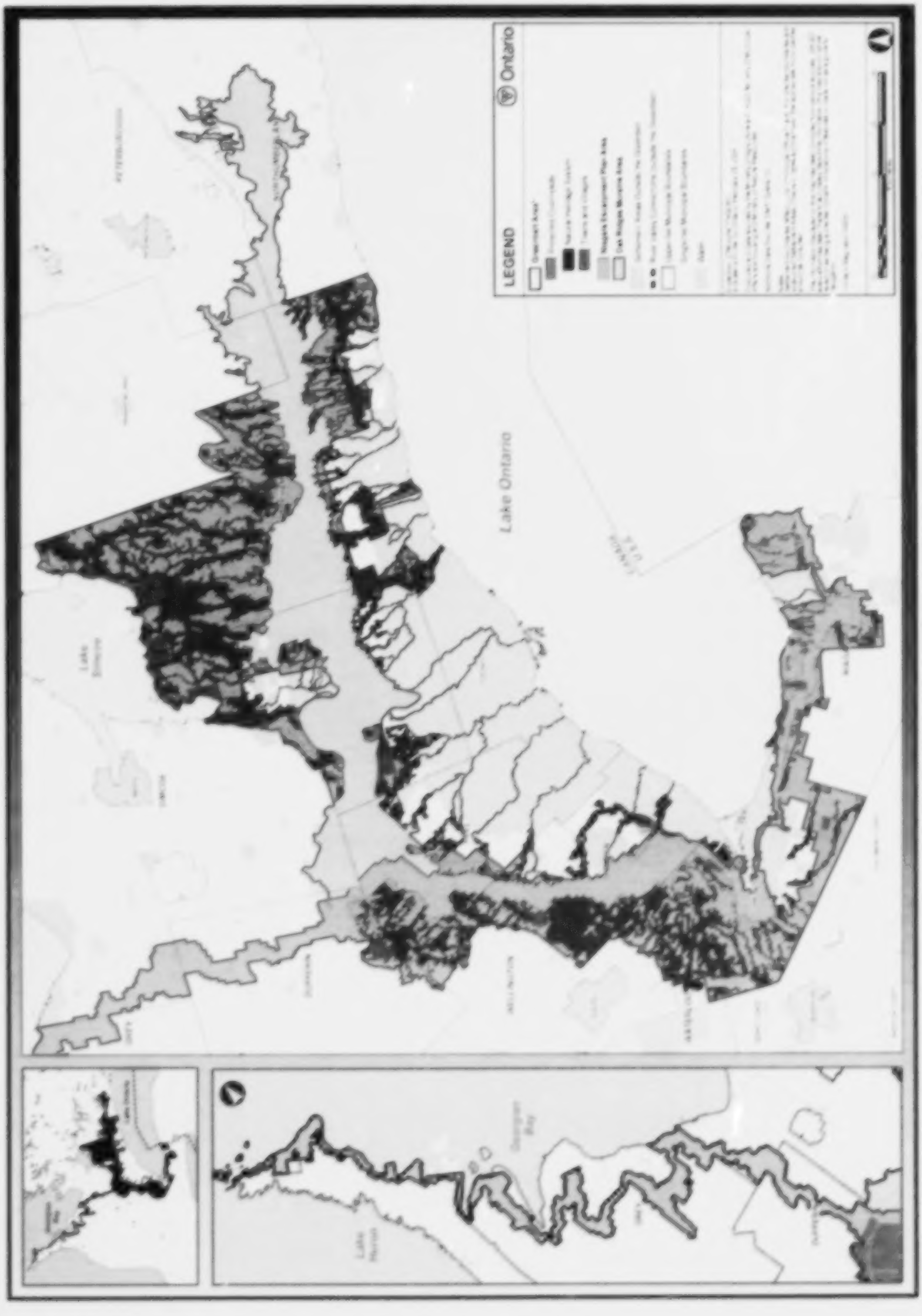


Figure 6-42. The Greenbelt area of southern Ontario (MMAH, 2005b).

Figure 6-43. The Natural Heritage System in the Greenbelt of southern Ontario (MMAH, 2005b).



6.17 The Lake Simcoe Watershed

Introduction

The Lake Simcoe Watershed includes Lake Simcoe and surrounding ecosystems, which encompasses about 330,300 ha north to Orillia, south to Aurora, east to Manilla, and west to Highway 400 (Fig. 6-44). Principal land uses include agriculture (encompassing 47% of the watershed area) and transportation facilities and urban areas (encompassing 18% of the watershed area). While 35% of the watershed is under natural cover, it is significantly fragmented (MOE, MNR, LSRCA, and DMTI Spatial Inc., 2009). The boundaries of the Oak Ridges Moraine and the Greenbelt overlap with the watershed boundaries, and therefore, the statutes and management plans developed for all three designations are used to care for assets in the Lake Simcoe Watershed.

The *Lake Simcoe Protection Act* received royal assent in 2008 (Statutes of Ontario 2008), and provides for the establishment of the *Lake Simcoe Protection Plan*. The vision statement for the Lake Simcoe Watershed states: *"We believe…that the lake is life and the health of the lake determines the quality of life. We see a Lake Simcoe watershed… where a healthy environment provides the foundation for healthy communities, healthy people, and a healthy economy[,] where the well-being of diverse life forms – fish, wildlife, plants and human beings are enhanced[,] where we protect our natural environment for future generations[,] where natural shorelines are maintained and where development is well planned and ecologically sound[,] where citizens, governments, businesses and industries are stewards of the land, water and natural heritage[,] where there is greater cooperation, leadership and responsibility among all parties to protect the Lake Simcoe watershed for present and future generations[, and] where our children can take their children to the beach and our grandchildren can take their grandchildren fishing and canoeing"* (MOE, MNR, LSRCA, and DMTI Spatial Inc., 2009:5).

Legislation and Policy Basis

The *Lake Simcoe Protection Act* of 2008 provides the authority for the establishment of the *Lake Simcoe Protection Plan*. The Act also acknowledges the need to adopt a greater ecosystem approach to management through the provision of policies in relation to research and monitoring in areas outside of the watershed in order to determine if any human activities are directly or indirectly affecting the ecological health of the watershed (MOE, MNR, LSRCA, and DMTI Spatial Inc., 2009:7). In addition to requiring the Province to establish the protection plan, the Act:

- Sets the objectives of the plan.
- Sets minimum plan contents, including specific targets for protection of natural assets, identifies the types of policies that the plan can contain, and establishes the legal basis for those policies.
- Creates two advisory committees, a science committee and a coordinating committee, to advise on plan implementation, monitoring, reporting, and where necessary plan amendment.
- Provides authority for the province to regulate shoreline activities affecting watershed health.
- Provides authority for the Province to create a water trading regulation.
- Allows the province to require municipalities to pass by-laws to control site alteration, top soil removal, tree cutting, use of lawn fertilizers, and pet waste (Government of Ontario, 2009b; MOE, MNR, LSRCA, and DMTI Spatial Inc., 2009).

Protection Goal and/or Objectives

The objectives of the *Lake Simcoe Protection Plan* are to:

- *"Protect, improve or restore the elements that contribute to the ecological health of the Lake Simcoe watershed, including water quality, hydrology, key natural heritage features and their functions, and key hydrological features and their functions.*
- *Restore a self-sustaining coldwater fish community in Lake Simcoe.*
- *Reduce loadings of phosphorous and other nutrients of concern to Lake Simcoe and its tributaries.*
- *Reduce the discharge of pollutants to Lake Simcoe and its tributaries.*
- *Respond to adverse effects related to invasive species and where possible, to prevent invasive species from entering the Lake Simcoe watershed.*
- *Improve the Lake Simcoe watershed's capacity to adapt to climate change.*
- *Provide for ongoing scientific research and monitoring related to the ecological health of the Lake Simcoe watershed.*

- *Improve conditions for environmentally sustainable recreation activities related to Lake Simcoe and to promote those activities.*
- *Promote environmentally sustainable land and water uses, activities and development practices.*
- *Build on the protections for the Lake Simcoe watershed that are provided by provincial plans that apply in all or in part of the Lake Simcoe watershed, including the Oak Ridges Moraine Conservation Plan and the Greenbelt Plan, and provincial legislation, including the Clean Water Act, 2006, the Conservation Authorities Act, the Ontario Water Resources Act, and the Planning Act.*
- *Pursue any other objectives set out in the Lake Simcoe Protection Plan"* (MOE, MNR, LSRCA, and DMTI Spatial Inc, 2009:8).

Selection Criteria

Provincial Parks, Areas of Natural and Scientific Interest, Provincially Significant Wetlands, important valleylands and woodlands, and other types of areas represent the natural heritage estate found in the Lake Simcoe Watershed. Natural heritage area features of the Oak Ridges Moraine (see pages 266-268) and the Greenbelt (see pages 270-271) that are encompassed by the Lake Simcoe Watershed are also included.

Management Objectives and/or Guidelines

The *Lake Simcoe Protection Plan* establishes seven principles to guide work programs designed to protect and restore the ecological health of the watershed:

- **Ecosystem Approach:** The approach recognizes that a healthy ecosystem provides the basis for healthy communities and a healthy economy, is based on the best available science, ensures that cumulative impacts are addressed in management decisions, and requires decision-makers to adopt an interconnected systems approach to planning.

- **Subwatershed Approach:** The approach recognizes that different issues occur and solutions are developed and implemented at different scales requiring use of a multi-scale watershed spatial framework.

- **Precautionary Approach:** The plan calls for decision-makers to account for risk and uncertainty and to use caution as required.

- **Adaptive Management Approach:** The plan defines adaptive management as a process that provides for the continual improvement of policies and management actions based on science, technology, innovation, and monitoring.

- **Sustainable Development Approach:** Community and economic growth must be ecologically sustainable.

- **Shared Responsibility:** The successful implementation of the *Lake Simcoe Protection Plan* will depend on collaboration among the variety of agencies, organizations, and individual people in all sectors.

- **Cost-effectiveness:** Programs and projects defined by the plan will be cost-effective and will recognize the fiscal realties of implementation (MOE, MNR, LSRCA, and DMTI Spatial Inc., 2009:9).

While the plan recognizes the long-term nature of the undertaking, it focuses on a number of near-term issues that are critical to the health of Lake Simcoe, including restoring the health of aquatic life throughout the Lake Simcoe Watershed; improving water quality; reducing phosphorous loadings to Lake Simcoe; maintaining water quality; protecting and rehabilitating important areas such as shorelines and natural heritage areas; and addressing the impacts of invasive species, climate change, and recreational activities (MOE, MNR, LSRCA, and DMTI Spatial Inc., 2009:9). Specific protection measures for a number of natural assets found in the watershed include:

Water Quality:

- Work with the municipalities to establish long-term sewage treatment plant targets.
- Continue to ban new municipal sewage treatment plants (with exceptions).
- Encourage adoption and use of agricultural best management practices such as vegetative buffers, cover crops, and wind breaks that help reduce soil loss and phosphorous loading, and improve water quality.
- Establish stringent requirements for stormwater management design.
- Encourage municipalities to address stormwater retrofits.
- Commit to the creation of a regulation requiring re-inspection of septic systems and to restrictions of on-site sewage systems within 100 m of shoreline (with exceptions).

- Require site plans and subdivision agreements to reduce phosphorous resulting from construction activities (similar to conditions contained in the *Oak Ridges Moraine Conservation Plan*).
- Continue research on the sources of atmospheric deposition of phosphorous and effectiveness of management practices.
- Evaluate the feasibility of implementing a water quality trading program to reduce phosphorous from all major sources as part of an overall phosphorous reduction strategy.

Protect Natural Areas and Shorelines:
- Prohibit development or site alteration in important (key) natural heritage and hydrological features and their related minimum vegetation protection zones (subject to specified exceptions).
- Prohibit development or site alteration near the Lake Simcoe shore (subject to specified exceptions).
- Require application of natural shoreline erosion controls and establishment of natural self-sustaining vegetation in the buffer zones.
- Require protection of the 'ecological function' of significant ground water recharge areas, and require municipalities to incorporate recharge areas into official plans.
- Develop a shoreline management strategy and identify key areas for natural heritage stewardship and restoration.
- Develop and implement a shoreline regulation that addresses vegetation removal, peat extraction, filling and draining of existing wetlands, and policies requiring shoreline protection.

Protect Water Quantity:
- Develop in-stream flow targets for subwatersheds and prepare detailed water budgets.
- Require proponents to prepare water conservation plans in concert with applications for new or expanding major recreational facilities such as golf courses, campgrounds, and ski hills.
- Commit municipalities to produce water conservation and efficiency plans (in areas outside of the Oak Ridges Moraine) and encourage development and implementation of water conservation and efficiency practices by non-municipal sectors.

Promote Sustainable Recreation:
- Municipalities will ensure public access to Lake Simcoe is maintained.
- Encourage owners and operators of marinas, golf courses, and other recreational businesses in the watershed to adopt best management practices and promote environmental certification programs.

Manage for Invasive Species:
- Develop regulations requiring anglers who fish in the Lake Simcoe Watershed to use only live bait caught in the watershed.
- Enhance education and outreach programs, including best management practice guides for industry and the public.
- Develop and use a watch list for invasive species threatening to invade the watershed and prepare risk-based response plans.
- Introduce a terrestrial invasive species monitoring program with annual reporting requirements.

Protect Aquatic Life and Habitat:
- Develop aquatic/fish community objectives.
- Enhance monitoring, research, and assessment.
- Ensure stocking programs subscribe to the principles of sustainable management and result in the restoration of coldwater fish populations.
- Enhance existing stewardship incentive programs.

Increase Capacity to Adapt to Climate Change:
- Develop a climate change adaptation strategy for the Lake Simcoe watershed.

Other measure to protect Lake Simcoe:
- Complete subwatershed evaluations.
- Develop agricultural and rural stewardship programs and initiatives.
- Develop principles for a financing strategy and implementation plan.
- Develop a framework to coordinate implementation of the plan (Government of Ontario, 2009b).

Specific natural heritage area targets are:
- *"No further loss of natural shorelines on Lake Simcoe.*
- *Achieve a greater proportion of natural vegetation cover in large high quality patches.*
- *Achieve a minimum 40 percent high quality natural vegetative cover in the watershed.*

Image by L. S. Withers

- *Achieve protection of wetlands.*
- *Achieve naturalized riparian areas on Lake Simcoe and along streams.*
- *Restore natural areas or features.*
- *Achieve increased ecological health based on the status of indicators species and maintenance of natural biodiversity"* (MOE, MNR, LSRCA, and DMTI Spatial, 2009:8).

The Degree of Protection for the Lake Simcoe Watershed and the Corresponding IUCN Protected Area Management Category: Preliminary Assessment

Some sites in the Lake Simcoe Watershed qualify as 'fully protected' areas because protection is the primary objective, the commitment is legislated, they are protected year-round in perpetuity, and they exclude industrial activities and large-scale developments. These areas may qualify as IUCN categories Ia, II, III, or IV protected areas. A site by site assessment would be required to determine the status of each area.

The overall intent for the management of the Lake Simcoe Watershed as described in the *Lake Simcoe Protection Act*, the *Lake Simcoe Protection Plan*, the *Greenbelt Act*, the *Greenbelt Plan*, the *Oak Ridges Moraine Act*, and the *Oak Ridges Moraine Conservation Plan*, and associated commitments is consistent with many of the criteria/standards developed for Category V protected areas by the IUCN and affiliated organizations (see Dudley, 2008 and Phillips, 2002). However, the natural heritage areas in the Lake Simcoe Watershed do not meet the 75% rule recommended by IUCN (i.e., the primary objective of nature conservation should apply to 75% of the protected area; Dudley, 2008:35). Given that the 75% rule is not formally prescriptive, and given that Category V criteria do recognize a holistic, ecologically-oriented approach to management (including important terrestrial 'greenway' and aquatic 'blueway' linkages over large areas), there may be merit in recognizing the Lake Simcoe Watershed in concert with the Greenbelt, the Niagara Escarpment, and the Oak Ridges Moraine as a Category V protected area.

Key Contact(s)

Environmental Programs Division
Ministry of the Environment
55 St. Clair Avenue West, Floor 7
Toronto, Ontario
M4V 2Y7
Telephone: 416-327-9438
FAX: 416-314-6396

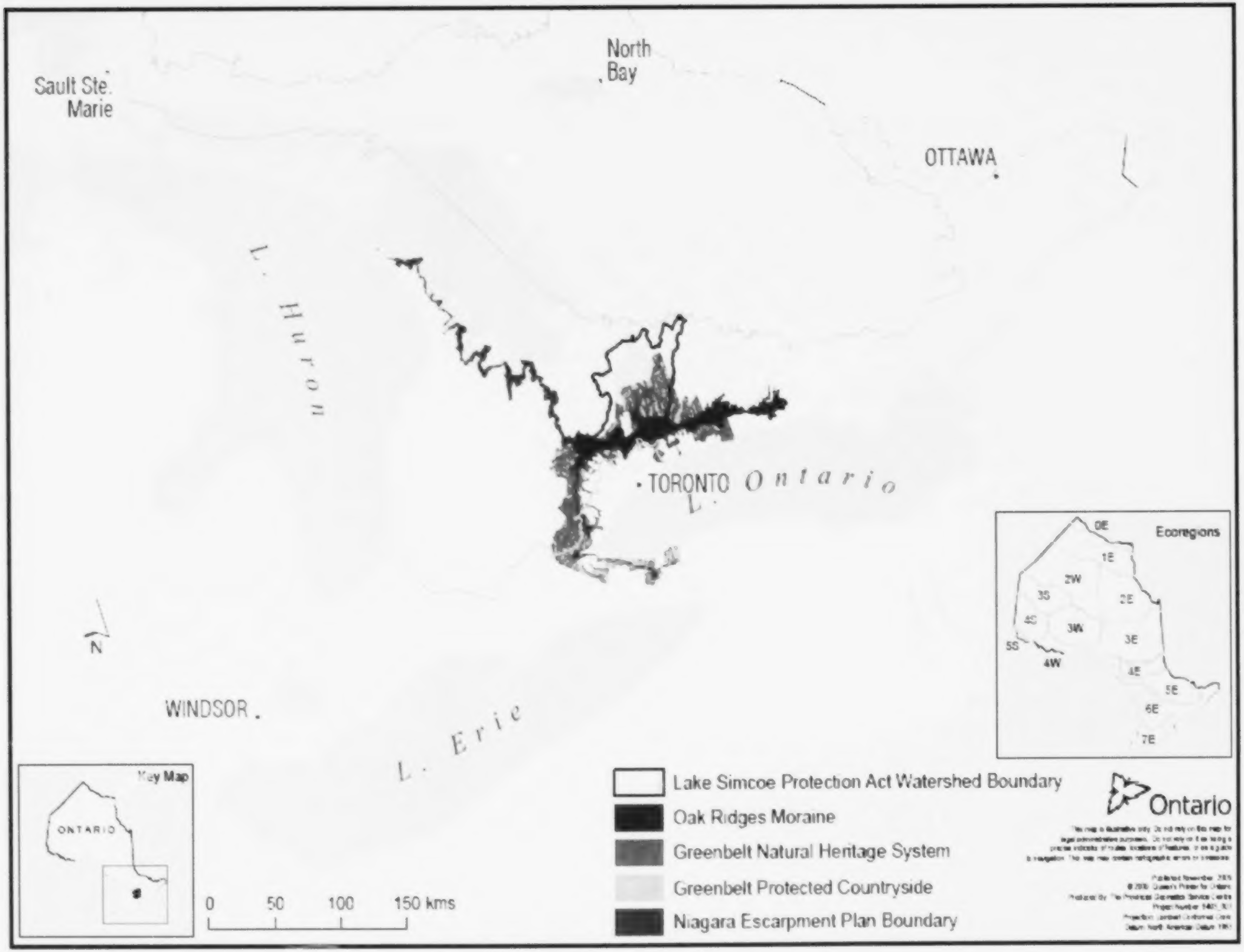


Figure 6-44. The Lake Simcoe Watershed (outlined in blue) in relation to Ecoregion boundaries (note the overlap with the Oak Ridges Moraine and the Greenbelt)

7. Areas On and Adjacent to Municipal Lands

Introduction

The current population of Ontario is 12,080,300 or 11 people/ km². However, this density estimate is misleading because almost 90% of Ontarians live and work in the two most southern Ecoregions, which encompass only 7.5% of the Province. For example, the population density in Ecoregions 6E and 7E is 113 people/km², while in the remaining 12 northern Ecoregions is 1.1 people/km². Most Ontarians live in urban areas which encompass a significant area of southern Ontario and relatively small pockets of land in northern Ontario. The area encompassed by cities, towns, and villages exceeds 2,272,600 ha (Government of Ontario, 1986:26). This chapter addresses protected areas on and adjacent to urban lands, and focuses on:

- Municipal Parks and Open Spaces.
- Natural Heritage Features in Urban and Rural Areas (Provincially Significant Wetlands, Valleys, Woodlots, Wildlife Habitat, all Fish Habitat, and Areas of Natural and Scientific Interest located on municipal lands).
- Rouge Park.

7.1 Municipal Parks and Open Spaces

Introduction

Most villages, towns, and cities have established a park and/or open space program for residents and visitors to engage in outdoor activities. Ontario was the first Canadian province/territory to pass legislation governing the development and operation of municipal parks. The *Public Parks Act* (passed in 1883 and since repealed) empowered cities and towns to create parks with electorate consent and establish management boards (Eagles, 1993). There is no single registry or source of information on protected areas in Ontario's municipalities, therefore an estimate of area is not included in this report.

Legislation and Policy Basis

Municipal Parks in Ontario are governed through application of the *Planning Act* (Statutes of Ontario, 1990a) and the *Municipal Act* (Statutes of Ontario, 2001a), which gives municipalities the ability to pass bylaws with respect to culture, parks, recreation, and heritage.

Protection Goal and/or Objectives

Protection goals and objectives vary. Historically, Municipal Parks have been used more to meet social and cultural needs than to protect ecological values. However, in recent years many municipalities have begun to acquire and manage more parkland according to objectives designed to enhance ecological values (Eagles, 1993).

Image by P.A. Gray

Selection Criteria

Selection criteria vary for each municipality. While Municipal Parks are generally managed to provide recreational opportunities, some contain significant natural (e.g., bluffs, woodlots, and valleys) features that contribute to biodiversity and ecosystem health.

Section 42(1) of the *Planning Act* empowers municipalities to require that 2% of land proposed for development or redevelopment for commercial or industrial uses and 5% of all other lands be conveyed to the municipality for park or other recreational purposes (Statutes of Ontario, 1990a). Although a statistical summary of all urban parks in Ontario is not available, we estimate that a minimum of 79,541 ha (3.5% of land located within the boundaries of cities, towns, and villages) are managed as parkland (open space).

It is not our intent to leave readers with the impression that this estimate is indicative of existing 'greenspace' in Ontario's urban areas. For example, using satellite imagery, the Government of Canada estimated that the amount of greenspace in Toronto (71,994 ha) and London (9,588 ha) alone is greater than our estimate. The greenspace in these and other urban centres is partitioned into thousands of small properties (e.g., 91.2% of all greenspace parcels in the Toronto study area were smaller than 10 ha) that are owned and/or managed by private landowners, the private sector, organizations, and government agencies (Environment Canada, 1996:12-25).

Management Objectives and/cr Guidelines

Some municipalities complete management plans and often zone parks and open space areas during the preparation of official plans. Each official plan is distinct in terms of the objectives, the types of zones that are established, and the degree of protection provided for in the plan's policy statements. Some municipalities employ a zoning scheme that recognizes the range of conditions within their jurisdiction, from strict protection of sensitive natural areas to a variety of uses in open space lands. For example, the City of Hamilton uses five zones to organize parks and open space planning (Table 7-1; City of Hamilton, 2007).

The Degree of Protection for Municipal Parks and the Corresponding IUCN Protected Area Management Category: A Preliminary Assessment

Many Municipal Parks with management programs focused on the protection of natural heritage values could potentially qualify as 'fully protected' areas because protection is the primary objective, the commitment is legislated, they are protected year-round in perpetuity, and they exclude industrial activities and large-scale developments. Although an examination of each Municipal Park and the associated official plan is required to determine protected area status, potential categories include Ia, II, III, and IV.

Table 7-1. Parks and open space zoning in the City of Hamilton.

Park Classification	Descriptions
1. Neighbourhood Parks	Parks located in a neighbourhood offering play structures and small sports fields.
2. Community Parks	Larger parks that attract more people from the whole community. They may include arenas, community centres, or larger sports fields.
3. City Wide Parks	Parks that attract people from all over Hamilton. They offer commercial recreation or marinas.
4. General Open Space	These areas include agricultural land, cemeteries, community gardens, golf courses, picnic areas, seasonal camping grounds, walking paths, and wildlife preserves.
5. Conservation Open Space	These areas include floodplains and hazard lands.

Source: City of Hamilton (2007).

7.2 Natural Heritage Areas and Features in Urban and Rural Areas

Introduction

Well over 50% of Ontario's Areas of Natural and Scientific Interest and significant wetlands are held by private landowners or non-Crown agencies. And although most fisheries are owned by the Crown, many aquatic habitats (e.g., headwater streams and riparian lands) are located on privately owned lands as well. In southern Ontario, over 80% of the land abutting fish habitat is privately owned, and many endangered and threatened plant and animal species depend on habitat located on private land (MNR, 1998f).

In the context of municipal planning, maintaining a strong community, a clean and healthy environment, and a strong economy will enhance long-term prosperity and social well-being in Ontario (MMAH, 2005a). Accordingly, the Government of Ontario has developed a *Provincial Policy Statement* (PPS) that provides direction about matters of provincial interest related to land use planning and development:

- **Building Strong Communities:**
    - Managing and directing land use.
    - Coordination.
    - Employment areas.
    - Housing.
    - Public spaces, parks, and open space.
    - Infrastructure.
    - Long-term economic prosperity.
    - Energy and air quality.

- **Wise Use and Management of Resources:**
    - Natural heritage.
    - Water.
    - Agriculture.
    - Minerals and petroleum.
    - Mineral aggregate resources.
    - Cultural heritage and archaeology.

- **Protecting Public Health and Safety:**
    - Natural hazards.
    - Human-made hazards (MMAH, 2005a).

Although no estimate of natural areas and features cared for under the auspices of the *Provincial Policy Statement* is available, it is important to note that many of these natural areas and features are protected through other mechanisms described in this report.

Legislation and Policy Basis

The *Provincial Policy Statement* is issued under authority of Section 3 of the *Planning Act* and provides direction on matters of provincial interest related to land use planning and development. The *Provincial Policy Statement* is intended to complement local policies (Statutes of Ontario, 1990a). It is important to note that the *Provincial Policy Statement* provides minimum standards, and municipalities are encouraged to enhance these standards to address natural heritage protection matters where ever possible.

Protection Goal and/or Objectives

A primary aim of the *Provincial Policy Statement* is to protect natural values of provincial interest and the quality of the natural environment. It recognizes the need for sustainable resource management to protect essential ecological processes, minimize environmental impacts, and conserve land and resources to help meet long-term needs (MMAH, 2005a). Natural heritage areas and features are addressed in Section 2.1 of the *Provincial Policy Statement*, which states that the protection of natural heritage features and areas are important in the long-term and that "*the diversity and connectivity of natural features in an area, and the long-term ecological function and biodiversity of natural heritage systems, should be maintained, restored or, where possible, improved, recognizing linkages between and among natural heritage features and areas, surface water features and ground water features*" (MMAH, 2005a).

Image by P.A. Gray

Selection Criteria

Featured natural heritage areas as defined by the *Provincial Policy Statement* may include "*significant wetlands, significant coastal wetlands, fish habitat, significant woodlands south and east of the Canadian Shield, significant valleylands south and east of the Canadian Shield, significant habitat of endangered species and threatened species, significant wildlife habitat, and significant areas of natural and scientific interest, which are important for their environmental and social values as a legacy of the natural landscapes of an area*" (MMAH, 2005a).

Management Objectives and/or Guidelines

The *Provincial Policy Statement* indicates that natural heritage features and areas will be protected from incompatible development. The following restrictions apply to development and site alterations:

- Development and site alteration shall not be permitted in:
  - Significant habitat of endangered and threatened species.
  - Significant wetlands in Ecoregions 5E, 6E, and 7E.
  - Significant coastal wetlands.
- Development and site alteration shall not be permitted in the following areas unless it has been demonstrated that there will be no negative impacts on the natural features or the ecological functions for which the area is identified:
  - Significant wetlands on the Canadian Shield north of Ecoregions 5E, 6E, and 7E.
  - Significant woodlands south and east of the Canadian Shield.
  - Significant valleylands south and east of the Canadian Shield.
  - Significant wildlife habitat.
  - Significant Areas of Natural and Scientific Interest.
- Development and site alteration shall not be permitted in fish habitat except in accordance with provincial and federal requirements.
- Development and site alterations shall not be permitted on lands adjacent to significant natural heritage features and areas identified above unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated that there will be no negative impacts on the natural features or on their ecological function (MMAH, 2005a).

The Degree of Protection for Natural Heritage Areas and Features in Urban and Rural Areas and the Corresponding IUCN Protected Area Management Category: A Preliminary Assessment

Natural heritage features or areas that are specifically dedicated to the protection of natural values and legally protected in perpetuity could qualify as 'fully protected' areas and be classified under the IUCN protected areas system. Although an examination of each site and the management regime used to protect it is required to determine the suitability for inclusion in the IUCN protected area classification system, sites may qualify as Category Ia, III, or IV protected areas.

Key Contact(s)

Provincial Planning and Environmental
Services Branch
Ministry of Municipal Affairs and Housing
14th Floor, 777 Bay Street
Toronto, Ontario M5G 2E5
Telephone: 416-585-7191

7.3 Rouge Park

Introduction

The Rouge watershed encompasses 33,700 ha and is located in the Greater Toronto Area, which is populated by more than four million people. Its headwaters are located on the Oak Ridges Moraine, and drains into Lake Ontario (Fig. 7-1). Rouge Park is composed of a diverse, linked network of natural forests, swamps, marshlands, meadows, streams, rivers, shorelines, bluffs, and human-dominated landscapes. Although not part of the Provincial Parks system, Rouge Park is an operating, substantially healthy, ecologically intact area adjacent to a densely populated urban area that is worthy of protection (MNR, 1994b:42).

The Rouge Park Alliance, a partnership of federal, provincial, regional, and local interests is the governing body responsible for setting the overall directions and priorities for Rouge Park. The MNR is the lead provincial agency that works with the Rouge Park Alliance. The Toronto and Region Conservation Authority serves as the Rouge Park Alliance's land agent.

Rouge Park consisted of 2,350 ha of publicly owned or leased lands when the park plan was completed in 1994 (MNR, 1994b:16). Currently, the Park encompasses 4,072 ha (Table 7-2, Fig. 7-1).

Table 7-2. Rouge Park properties.

Ownership		Area (ha)
Toronto and Region Conservation Authority		**2,630**
Ontario Hydro		**204**
Town of Markham		**117**
City of Toronto		**117**
City of Toronto Roads		**85**
Railway		**61**
Federal Lands		**858**
	Total	**4,072**

Source: (E. Followes, personal communication)

Legislation and Policy Basis

Rouge Park is managed in accordance with a suite of policies contained in two management plans, the *Rouge Park Management Plan* (MNR, 1994b) and the *Rouge North Management Plan* (Rouge Park Alliance, 2001). Policies are organized according to natural, cultural, and scenic values. In addition, the *Little Rouge Corridor Management Plan*, the *Bob Hunter Memorial Area Master Plan*, a special section (Section 3.2.6) in Ontario's *Greenbelt Plan*, and an amendment to the Official Plan (Amendment #140) for the Town of Markham are used to guide human activities in Rouge Park (L. Yeager, personal communication; E. Followes, personal communication).

Protection Goal and/or Objectives

The vision for Rouge Park states that it will be a special place of outstanding natural features and diverse cultural heritage in an urban-rural setting, protected and flourishing as an ecosystem in perpetuity. Human activities will exist in harmony with the natural values of the park.

The primary focus of the vision is based on the protection and appreciation of the park ecosystem. The goal for Rouge Park is "*to protect and enhance the natural, scenic, and cultural values of the park in an ecosystem context, and to promote public responsibility, understanding, appreciation and enjoyment of this heritage*" (Rouge Park Alliance, 2006). Rouge Park objectives are to:

- Protect, restore, and enhance the natural ecosystem of Rouge Park by ensuring the health and diversity of its native species, habitats, landscapes, and ecological processes.
- Identify, protect, and conserve the cultural heritage features of the park for their inherent value and depiction of the long-term human use and occupancy of the area.
- Ensure protection of the ecological integrity and cultural values of the park through innovative planning, management, and land use in the park and its environs (Rouge Park Alliance, 2006).

Selection Criteria

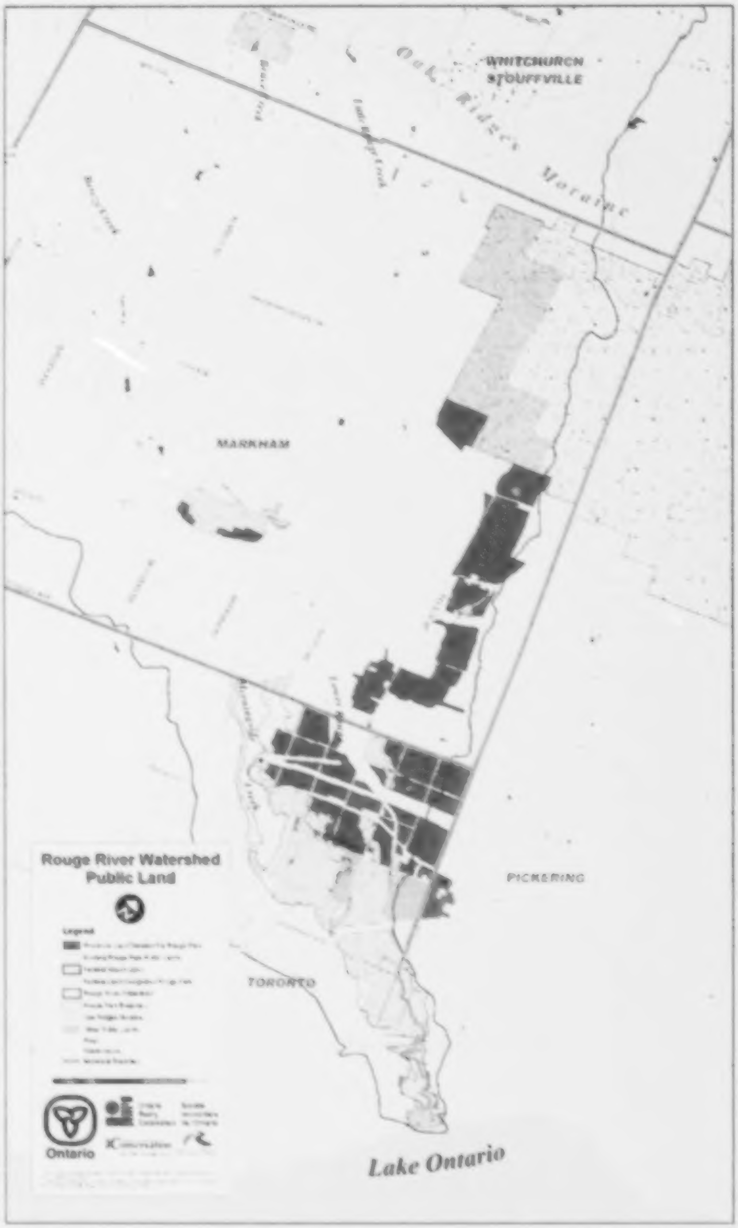
When Rouge Park was first established on Toronto and Pickering lands, its boundary was delineated according to five criteria:

- **Natural Values:** Rouge Park contains natural values that require protection, including site specific natural areas and the valley and stream corridors which extend along the waterways within the park. These corridors include valleylands and some adjacent tablelands as an integral part of the valley corridor with adequate provision for wildlife habitat and restoration. The boundary also addresses the protection of natural areas including Areas of Natural and Scientific Interest, environmentally sensitive areas, wetlands, woodlots, meadows, areas containing significant vegetation or wildlife habitat, significant geological features, and areas that demonstrate significant hydrological function.
- **Cultural Heritage Values:** The boundary encompasses cultural heritage values such as archaeological sites, heritage structures, and cultural landscapes.
- **Aesthetic Values:** This criterion recognizes that Rouge Park has very important aesthetic values, including important vistas.
- **Recreational Values:** Rouge Park encompasses recreationally important areas, including hiking trails.
- **Administrative Boundaries:** This criterion is applied on tableland areas where no natural or cultural criteria are applicable. In some instances, administrative boundaries or features, such as roads, are used (MNR, 1994b:15-16).

Subsequent delineation of the boundary in York Region was based on ecological and cultural criteria. These criteria are unique in Canada, recognized in the Greenbelt Plan, and integrated into the amendment to the Official Plan (Amendment #140) for the Town of Markham. The criteria used are:

- **Watercourses and Existing Regulatory Floodline:** Designed to protect key water related attributes and functions, and protect them within Rouge Park while mitigating future risk to life and property.
- **Meander Belt:** Designed to ensure that natural progressions in meander geometry can be accommodated unimpeded.
- **Valley and Stream Corridor Features:** To ensure the protection of valley and stream corridors with their associated features and functions within Rouge Park to achieve objectives related to floodplain management, habitat preservation, slope stability, and mitigation of risk to life and property.
- **Natural and Riparian Vegetation Communities and Interior Forest Conditions:** Designed to protect vegetation communities of concern and interior forest habitat to ensure the long term health of the watershed ecosystem and to achieve Rouge Park objectives related to the protection, restoration, and enhancement of terrestrial habitat.
- **Wetlands, Evaluated Wetlands, Environmentally Sensitive Areas, Areas of Natural and Scientific Interest, and Locally Significant Areas:** To ensure the protection of these important features, their functions and their contributions to the health of the Rouge Park natural heritage system.
- **Habitats for Vulnerable, Threatened, and Endangered Species and Species of Concern:** Designed to ensure that habitats for species designated as vulnerable, threatened, endangered, of special concern, or of concern by the relevant agencies are protected.
- **Terrestrial Corridor Habitat Function:** Designed to maintain and enhance habitat corridors important to life cycle requirements of many species, to provide for the enhancement of natural vegetation communities and interior forest conditions, and to enhance ecosystem resilience and integrity.
- **Seepage Areas and Groundwater Discharge:** Designed to ensure the protection of groundwater discharge areas and their contributory recharge areas so that their function is maintained.
- **Vegetation Community Maintenance Area:** Created to support long-term ecosystem composition, structure, and function.
- **Woodland Restoration Requirements:** Created to support long-term ecosystem composition, structure, and function.
- **Archaeological and Cultural Heritage Resources:** Designed to facilitate the assessment and evaluation of features to determine their significance and their appropriateness for protection within Rouge Park (Schollen and Company Inc. et al., 2003).

Figure 7-1. Rouge Park.



Rouge River Watershed map courtesy of
Toronto and Region Conservation Authority

Accessed from http://www.mnr.gov.on.ca/MNR/csb/news/2004/apr21nr_04.html

Ontario

This map is illustrative only. Do not rely on this map for legal administrative purposes. Do not rely on it as being a precise indicator of routes, locations of features, or as a guide to navigation. This map may contain cartographic errors or omissions.
Published 2007
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Produced By: The Provincial Geomatics Service Centre
Project Number: [illegible]

Management Objectives and/or Guidelines

The Park is managed under the auspices of two management plans (MNR, 1994b; Rouge Park Alliance, 2001), and its associated policies are designed to protect and enhance the values of the park and maintain its ecological integrity while providing for various recreational and public use opportunities (MNR, 1994b). Management programs are based on a number of principles:

I. Natural Heritage

- **Biodiversity:** Sustain and, where appropriate, restore and enhance biodiversity.
- **Sustainable Functions:** Sustain the biological and physical functions of the park, which are important to the long-term integrity of the ecosystem.
- **Restoration:** Enhance the natural heritage of Rouge Park through the restoration and reconnection of the natural communities, and the reintroduction of native species, if appropriate.
- **Health and Change:** Monitor the biological and physical conditions of Rouge Park so that changes, especially related to ecosystem health and the impacts of internal and external activities, can be assessed and managed appropriately.

II. Cultural Heritage

- **Broadly Defined:** Heritage should be considered in the broadest perspective including structures, sites, areas, objects and documents, and less tangible aspects such as human values, speech, lifestyle, and traditions.
- **Relevance to Rouge Park:** Only heritage features that are located within, or are directly related to, Rouge Park are considered for the purposes of management and interpretation.
- **Identification and Protection:** All significant archaeological, built, and landscape heritage features require identification and protection on a priority basis.

III. First Nations Involvement

- First Nations should be involved in all stages of planning and development for interpretation of Aboriginal heritage in Rouge Park and in the management of archaeological sites.

IV. Land Use

- **Holistic View:** A key component in the planning and management of Rouge Park is an understanding of the behaviour of the river and the watershed as a whole.
- **Integrity of Rouge Park Environment:** Uses and/or activities occurring in or beyond Rouge Park must be viewed in the context of Rouge Park, and must ensure that the Park's ecological integrity and scenic and cultural values are protected, restored, and enhanced.
- **Respect for Natural and Cultural Heritage:** Land use activities and facilities within Rouge Park and its environs must protect ecosystem integrity and contribute to the restoration and enhancement of its natural, scenic, historic, and cultural values, where needed.
- **Linkages and Natural Systems:** Protection and enhancement of natural systems within an urban-rural fabric of Rouge Park must form the fundamental basis of community planning.
- **Environmental Standards:** All Park-related land use and development deemed appropriate to achieving management objectives must demonstrate high environmental standards.
- **Innovation, Demonstration, and a View to the Future:** The land use and resource management approach adopted for Rouge Park should encourage a level of scientific research compatible with attaining goals and objectives.

V. Interpretation and Education

- **Comprehensive and Integrated:** A comprehensive and integrated approach to the interpretation of Rouge Park's natural values, ecological processes, and the relationship over time between its inhabitants and nature, should be adopted.
- **Evolutionary in Focus:** Rouge Park management and heritage interpretation should include a strong emphasis on evolving cultural landscapes, including the 'layer' of change in landscapes, sites, and structures, and the influencing forces in their evolution.
- **Understanding and Protection:** All site specific interpretive/educational proposals for Rouge Park must consider the sensitivity of the sites to human intrusion.

Image by P.A. Gray

- **Community Involvement:** The design of the interpretive, educational, and monitoring programs for Rouge Park should encourage the participation of individuals, groups, and institutions.

VI. Recreation

- **Suitability within a Unique Park Vision:** The range and type of recreational use permitted must be consistent with the goal and objectives established for Rouge Park and the carrying capacity of the ecosystem in which it exists.
- **Respect for Natural and Cultural Heritage Values:** No recreational activity will be allowed which adversely impacts the health of Rouge Park's ecosystem and its special habitats and cultural features.
- **Respect for Residents and Neighbours:** Any recreational activities in Rouge Park must not adversely affect residents and local neighbourhoods within or adjacent to the area.

VII. Management

- **Orderly and Evolutionary Plan for the Future:** The administrative and management framework for Rouge Park must provide for the implementation of objectives and associated policies over reasonable planning timeframes.
- **Partnership Commitment:** The Rouge Park management plan must strive for the full support and cooperation of all levels of government, and should seek the commitment of community and volunteer organizations which could assist in program implementation.
- **Experienced Leadership:** The administration and management of the Park requires experience in areas related to, but not limited to, resource management and research, land use regulation and monitoring, recreational management and programming, and park administration.

VIII. Zoning

Lands within Rouge Park are zoned according to their natural and cultural heritage values and associated management requirements:

- **Nature Reserve Zone:** Includes lands identified as Areas of Natural and Scientific Interest and other natural areas, such as river and stream corridors, upland woodlots, wetlands, and critical linkage areas.
- **Restoration Zone:** Includes tablelands and stream corridors, which form potential Nature Reserve Zones.
- **Agricultural Heritage Reserve Zone:** Includes several significant agricultural areas designated for farming and to protect farm complexes which contain important cultural heritage values.
- **Access Zone:** Several existing and proposed Access Zones have been identified and will be used to manage pedestrian access at key locations (Rouge Park south only).
- **Special Management Zone:** Includes areas where there is need for remedial/enhancement or altered/operational programs.
- **Natural Area Zone:** Lands that encompass a range of environmental features including wetlands or woodlots, which function as viable local habitat areas, but are constrained due to size, context, degree of isolation and other factors (in Rouge Park North only).
- **Managed Area Zone:** Areas with no significant or sensitive natural or ecological resources that are used for active and passive recreational opportunities (in Rouge Park North) (MNR, 1994b:4-7; Rouge Park Alliance, 2001).

The Degree of Protection for Rouge Park and the Corresponding IUCN Protected Area Management Category: A Preliminary Assessment

A significant amount of parkland in Rouge Park is 'fully protected' because protection is the primary objective, the commitment is the equivalent of being legislated, it is protected year-round in perpetuity, and it excludes industrial activities and large-scale developments. Overall, Rouge Park may qualify as a Category V protected area. Based on a site by site analysis, Rouge Park properties would likely qualify as IUCN Category Ia, II, III, or IV protected areas.

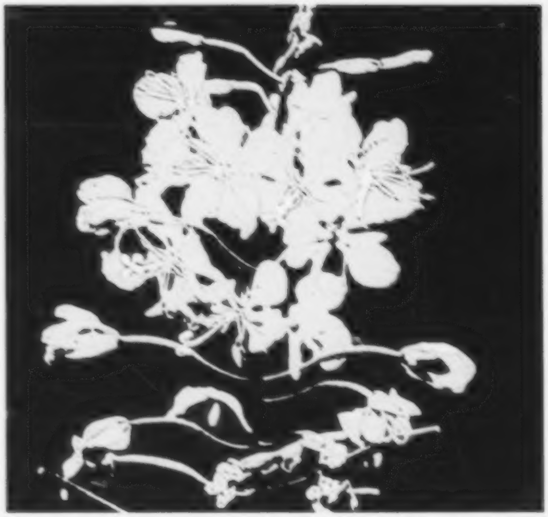


Image by P.A. Gray

Key Contact(s)

Rouge Park Office
50 Bloomington Road West, 3rd Floor
Aurora, Ontario
L4G 3G8
Telephone: 905-713-6038
Fax: 905-713-6028
Website: *www.rougepark.com*
Information: *rougepark@rougepark.com*

8. Private Land Areas and Mechanisms

Introduction

Approximately 13% of Ontario is held in private ownership – private stewardship by individuals and non-government organizations provides a valuable addition to Ontario's natural heritage areas network. For example, organizations like Ontario Nature, Wildlife Habitat Canada, World Wildlife Fund Canada, the Nature Conservancy of Canada, Ducks Unlimited, and the Bruce Trail Conservancy make significant contributions to natural heritage area acquisition initiatives and/or other types of cooperative stewardship programs on private lands.

Private individuals also are being encouraged to conserve natural assets through recent amendments to the Canada *Federal Income Tax Act* and the *Fair Municipal Finance Act*. For example, under the *Income Tax Act*, landowners who donate ecologically significant properties to the government or to charities receive favourable tax treatment (Environment Canada, 1996:14-19). Under the *Fair Municipal Finance Act*, the Government of Ontario sponsors the Conservation Land Tax Incentive Program and the Managed Forest Tax Incentive Program.

This section describes a number of private land natural heritage area programs in Ontario, including the:

- Eastern Habitat Joint Venture. The Eastern Habitat Joint Venture sponsors protection programs on Crown and private land, and it is included in this section because of the significant private land component and the contributions made by non-government organizations and private landowners.
- The Nature Conservancy of Canada – Nature Preserves.
- Ontario Nature's Nature Reserves.
- Bruce Trail Conservancy Properties.
- Carolinian Canada Sites.
- Provincial Tax Incentive Programs (the Conservation Land Tax Incentive Program and the Managed Forest Tax Incentive Program).
- Ontario Heritage Trust Properties.
- Conservation Easements.
- Land Trusts.

Image by P.A. Gray

8.1 Eastern Habitat Joint Venture

Introduction

The Eastern Habitat Joint Venture (EHJV) was created to support the *North American Waterfowl Management Plan* (NAWMP) in eastern Canada with a goal of assuring the survival of waterfowl populations through the preservation and restoration of quality wetland and upland habitats (Environment Canada, 2007b). Signed by Canada and the United States in 1986, and Mexico in 1994, the *North American Waterfowl Management Plan* combines the resources of federal, state, provincial, and municipal governments with those of non-government organizations, private companies, and individuals for joint projects or ventures. To date, 17 habitat joint ventures have been established across the continent (OEHJV, 2007).

The Eastern Habitat Joint Venture is the largest joint venture in North America, encompassing Ontario, Quebec, New Brunswick, Nova Scotia, Prince Edward Island, and Newfoundland and Labrador. The Eastern Habitat Joint Venture and the Ontario Eastern Habitat Joint Venture (OEHJV) secure, enhance, and manage thousands of hectares of wetland and associated upland in support of waterfowl populations (OEHJV, 2007) (Table 8-1). Specifically, in Ontario the OEHJV assists in wetland conservation through securing and enhancing wetlands and related uplands, creating and restoring wetlands, managing wetlands and related uplands, and contributing to overall habitat stewardship (Environment Canada, 2005d).

Table 8-1. Habitat secured, enhanced, and managed in Ontario between 1986-2004 by the Eastern Joint Habitat Venture.

Land	Ontario (ha)
Secured	199,780
Enhanced*	183,049
Managed*	168,445

* Note the areas are not additive; enhanced and managed areas have been previously secured.

Source: OEHJV (2006).

In addition to supporting the *North American Waterfowl Management Plan*, the Ontario Eastern Habitat Joint Venture recently broadened its mandate to address biodiversity by incorporating the principles of the North American Bird Conservation Initiative focused on the conservation of all avian species and their habitats (OEHJV, 2006).

Legislation and Policy Basis

Eastern Habitat Joint Venture protection and management programs are completed under the auspices of federal and provincial statutes (e.g., *Canada Wildlife Act, Conservation Authorities Act, Endangered Species Act, Migratory Birds Convention Act*, and the *Planning Act*) (OEHJV, 2007). A number of private land programs contribute to the success of the Eastern Habitat Joint Venture program as well.

Protection Goal and/or Objectives

The current five-year (2006-2010) 'Implementation Plan' for the Ontario Eastern Habitat Joint Venture outlines conservation goals and objectives that include the North American Bird Conservation Initiative principles. The goal is "*to work cooperatively and in concert with new and existing partners to ensure the conservation of all bird species and their habitats at the landscape and local levels within EHJV boundaries through the implementation of plans developed in full consideration of the biological needs of all species.*" The principal objective is "*to manage all bird populations and habitats within the context of sustainable landscape management, while respecting the needs of people and wildlife, through a partnership of government, non-government groups, corporations, and individuals*" (OEHJV, 2007).

Working objectives of the Ontario Eastern Habitat Joint Venture are the:

- Maintenance and/or increase of native waterfowl and other bird populations through the protection and restoration of ecological integrity and biological function of high quality habitats.
- Promotion of ecologically sound and sustainable landscape uses to meet the needs of birds, other wildlife, and people.
- Promotion and strengthening of linkages between other habitat and species joint ventures, government agencies, NGOs, industry, landowners, and individuals for the benefit of habitat conservation (OEHJV, 2007).

Ontario Eastern Habitat Joint Venture partners (including Ducks Unlimited Canada; the Canadian Wildlife Service; the Nature Conservancy of Canada; Wildlife Habitat Canada; the Ontario Ministry of Natural Resources; the Ontario Ministry of Agriculture, Food and Rural Affairs; and landowners) work to enhance habitat through restoration and modification of activities on associated wetlands. Partners also participate in habitat securement through purchases, donations, conservation easements, and conservation agreements (OEHJV, 2007).

Selection Criteria

Priority areas that require protection and restoration are identified using leading-edge techniques within Eastern Habitat Joint Venture planning units. Originally, Ontario's Eastern Habitat Joint Venture planning units were organized according to four areas: the Great Lakes/St. Lawrence, Northeastern Clay Belt, Hudson Bay Lowlands, and the Boreal Forest. In the most recent Ontario Eastern Habitat Joint Venture implementation plan, conservation planning is organized according to the four areas listed above, Bird Conservation Regions, and Waterfowl Conservation Regions. Priority areas are identified on the basis of threats to waterfowl populations and habitat in the Bird Conservation Regions and according to the need to protect provincially important waterfowl staging habitat (OEHJV, 2007).

Management Objectives and/or Guidelines

Under the 'Implementation Plan', the OEHJV is guided by the following principles:

- Program delivery will be accomplished through partnerships.
- Sound scientific practices must form the basis for all activities to guarantee a good understanding of natural and ecological systems and how our actions affect them.
- Programs will be prioritized to guarantee that efforts are intended for the geographic area and species that are the most limited or threatened.
- Recognition that the crucial needs of many birds extend beyond Ontario and therefore require inter-jurisdictional cooperation.
- Linkages must be built upon strong relationships between governments, NGOs, industry, landowners, and individuals.
- Promotion of sustainable land use and management practices compatible with bird conservation.
- When uncertainty is present caution should be used.
- Evaluation on a regular basis of activities to guarantee that programs continually improve via adaptive management models.
- Important aspects of resource management include securing, enhancing, restoring, and managing habitat.
- Conservation objectives will centre on sustaining population levels of common native birds, acquisition and/or enhancement of high quality habitats, and recovery of species at risk (OEHJV, 2007).

The 'Implementation Plan' identifies five work program areas during 2006-2010:

- **Conservation Program:** Includes securing, enhancing, managing, and providing good stewardship of habitat.
- **Communications and Education:** To aid in increasing knowledge and support of the Ontario Eastern Habitat Joint Venture.
- **Evaluation:** Assess, direct studies, and monitor activities to increase knowledge, ensure conservation actions are effective, and make adjustments where appropriate.
- **Policy Adjustment:** Continue work with policy-makers to influence municipal, provincial, and federal policy to ensure natural habitat protection.
- **North American Bird Conservation Initiative Planning, Monitoring, and Implementation:** Focus on waterbirds, shorebirds, and landbirds on a small scale (OEHJV, 2007).

The Degree of Protection for Eastern Habitat Joint Venture Areas and the Corresponding IUCN Protected Area Management Category: A Preliminary Assessment

Many Eastern Habitat Joint Venture properties are 'fully protected' areas because protection is the primary objective, the commitment is legislated, they are protected year-round in perpetuity, and they exclude industrial activities and large-scale developments. Given that 'fully protected' Eastern Habitat Joint Venture areas typically involve active habitat management, they would qualify as IUCN Category IV protected areas. A distinction between areas 'secured,' 'dedicated,' and 'under agreement' is required to determine the current disposition of properties in relation to the IUCN protected area categories.

Key Contact(s)

Eastern Habitat Joint Venture (Ontario) Project Officer
Canadian Wildlife Service – Ontario
Environment Canada
335 River Road
Ottawa, Ontario, K1A 0H3
Telephone: 613-949-8264
Website: www.on.ec.gc.ca/wildlife/ehjv/oehjv-e.html
Information: *EnviroInfo.Ontario@ec.gc.ca*

Biodiversity Branch
Ministry of Natural Resources
P.O. Box 7000
300 Water Street
Peterborough, Ontario, K9J 8M5
Telephone: 705-755-1960

Ducks Unlimited
740 Huronia Road, Unit 1
Barrie, Ontario, L4N 6C6
Telephone: 705-721-4444
Fax: 705-721-4999
Website: www.ducks.ca
Information: du_barrie@ducks.ca

8.2 Nature Conservancy of Canada – Nature Preserves

Introduction

The Nature Conservancy of Canada (NCC) is a national, non-profit organization with a vision to *"...protect areas of biological diversity for their intrinsic value and for the benefit of future generations"* (NCC, 2006a). Since its creation in 1962, The Nature Conservancy of Canada has worked with many partners to promote the protection of ecologically significant areas through land purchases, donations, conservation easements, long-term stewardship plans, and monitoring agreements (NCC, 2006a, b). For example, for more than a decade, the NCC has partnered with MNR's Ontario Parks to conserve ecologically significant natural areas. The Ontario Parks-NCC Legacy Program was established for the protection of biological diversity, special beauty, and educational and scientific interest, in accordance with the aims of Provincial Parks or Conservation Reserves to represent significant examples of Ontario's natural heritage. Through this partnership private lands were acquired by fee simple purchases, Conservation Easements, and donations to create new Provincial Parks or Conservation Reserves. Since 1962, the NCC and its supporters have conserved more than 51,000 ha of ecologically significant land and currently directly manage more than13,000 ha (D. Kraus, personal communication).

Legislation and Policy Basis

Nature Preserves are owned and managed in accordance with policies and management plans developed and implemented by the Nature Conservancy of Canada.

Protection Goal and Objectives

The mission of the Nature Conservancy is *"a nature legacy through partnership"*. To accomplish this mission, the Nature Conservancy of Canada secures ecologically significant natural areas through purchases, donations, conservation agreements or other mechanisms, and by achieving long-term stewardship through management plans and monitoring arrangements (NCC, 2006a).

The NCC undertakes ecological planning on a landscape scale (NCC, 2006b). Through the ecological planning process a Conservation Blueprint is created to help prioritize sites for conservation (NCC, 2006c). The NCC has undertaken the development of 14 Conservation Blueprints in southern Ecoregions of Canada, eight of which have been completed. Conservation Blueprints are ecoregional plans that document site features (NCC, 2006c). In Ontario, a Conservation Blueprint has been completed to guide NCC's efforts in the Great Lakes region.

The NCC is now focusing its conservation actions within natural areas. Natural areas are key places in which to conserve and maintain Canada's biodiversity, and are identified through Conservation Blueprints based on their biodiversity values, the level of threat, and opportunities for conservation action. Natural area conservation plans provide a process to integrate the regional conservation context of Conservation Blueprints with local knowledge and planning information. It is intended that the plans be updated and reviewed on an annual basis to reflect and adapt to new information. Natural area boundaries are defined on the basis of biodiversity targets identified for conservation action, the scope of the threats these targets face, and the location of conservation action needed.

Selection Criteria

The Nature Conservancy of Canada sets program priorities based on the results of Conservation Blueprints, other conservation planning projects, and in consultation with conservation interests, including national and local organizations such as naturalist clubs, academics, professional scientists, and knowledgeable individuals. In selecting projects, NCC staff use a number of criteria to allocate the financial resources available for acquisition. Data and information about the natural values of a property are gathered from many sources, including academics, professional biologists and ecologists who volunteer their time as members of the Conservancy's Scientific Advisory Network. Area selection criteria include:

- Representativeness or uniqueness of landforms and plant and animal communities
- Diversity of habitat and/or biotic communities
- Quality and ecological integrity of the site
- Existence of rare or unusual species
- Degree of threat to biodiversity (NCC, 2001)

Image by T.J. Beechey

Management Objectives and/or Guidelines

Although land title for most acquired areas was transferred to other conservation groups in the early years of the acquisition program, the NCC now tends to retain ownership and set them aside as permanent Nature Preserves. Exceptions most often occur when the NCC purchases land to add to, or create, a preserve for another conservation interest (NCC, 2001), or when NCC provides funding assistance to partners.

If the title is transferred, the NCC enters into a legally binding management agreement whenever appropriate to ensure that the natural values of the property are protected. This legal agreement stipulates that title reverts to the NCC if the owner dissolves or wishes to dispose of the property.

The NCC creates property management plans for all sites it retains. These plans are based on a detailed inventory and identify the actions needed to maintain biodiversity targets. Property management plans are renewed every five years.

Access to and use of each property is addressed on a site by site basis. While the primary concern is the protection of the ecological integrity of the Preserve, the NCC does permit some activities when they do not compromise biodiversity targets identified on the property.

The Degree of Protection for Nature Conservancy of Canada Nature Preserves and the Corresponding IUCN Protected Area Management Category: A Preliminary Assessment

Nature Conservancy of Canada properties are 'fully protected' areas because protection is the primary objective, the strength of the commitment is strong, they are protected year-round in perpetuity, and they exclude industrial activities and large-scale developments. Generally, NCC Nature Preserves would qualify as IUCN Category Ia protected areas. Given that some 'fully protected' NCC areas may involve active habitat management, they would also qualify as IUCN Category IV protected areas.

Key Contact(s)

The Nature Conservancy of Canada
115 Front Street, P.O. Box 520
Port Rowan, Ontario
N0E 1M0
Telephone: 519-586-7773
Fax: 519-586-9777
Website: www.natureconservancy.ca
Information: ontario@natureconservancy.ca

8.3 Ontario Nature's Nature Reserves

Introduction

In 1961, the Federation of Ontario Naturalists (currently Ontario Nature) received the donation of an island in Georgian Bay. This small island was the first acquisition for Ontario Nature's Nature Reserves system. Ontario Nature now protects 21 properties (2,047.6 ha) encompassing some of the Province's best remaining examples of imperiled and vulnerable habitats (Ontario Nature, 2006a, b) (Table 8-2, Fig. 8-1). Volunteers serve an important role in sustaining and improving Ontario Nature's Nature Reserve network (FON, 1998). Ontario Nature acquires Nature Reserves by means of donation, bequest, or outright purchase (Hilts et. al., 1986:82).

Table 8-2. Ontario Nature's Nature Reserves.

Nature Reserve	Area (ha)
Altberg Wildlife Sanctuary	471.8
Altberg Wetland	38.9
Baptist Harbour	10.9
Bruce Alvar	67.2
Cawthra Mulock	108.1
George G. Newton	32.4
H.N. Crossley	17.4
Harold Mitchel	13.8
Hay Marsh – John Kerastas Tract	40.5
Kinghurst Forest	280.7
Lawson Trust Land	14.6
Lost Bay	42.9
Lyal Island	305.4
Malcolm Kirk (Long Swamp)	43.7
Petrel Point	23.9
Quarry Bay	391.6
St. Joseph Island	40.5
Stewartville Swamp	8.1
Stone Road Alvar	42.9
Wilfred G. Crozier	4.1
Willoughby	48.2
Total	[†]2,047.6

[†] 2,033 ha qualify as 'fully protected' and 14.6 ha (Lawson Land Trust) qualify as 'partially protected' as defined in Chapter 2 (see Box 2-4 on page 21).

Source: Ontario Nature (2006a) and M. Carabetta, personal communication.

Legislation and Policy Basis

Nature Reserves are owned and managed in accordance with policies and management plans developed and implemented by Ontario Nature.

Protection Goal and/or Objectives

The goal of Ontario Nature's Nature Reserve system is to develop an independent province-wide system of Nature Reserves that will:

- Safeguard habitat for endangered plant and animal species.
- Protect biological diversity.
- Set benchmarks for scientific research.
- Create opportunities for recreation and nature appreciation (Ontario Nature, 2006a).

Selection Criteria

Lands and waters qualifying as one of Ontario Nature's Nature Reserves provide significant wildlife habitat. In addition, Ontario Nature has a longstanding interest in acquiring wetlands. Current priorities also include:

- **Heritage Woodlands:** Ontario Nature strives to obtain and preserve remaining examples of southern Ontario forested ecosystems in an effort to mitigate the alarming decline in migrant bird populations.
- **Great Lakes Shorelines:** The shores of the Great Lakes with their forests, dunes, and wetlands are unique in the world. Examples include Dorcas Bay, Petrel Point, Lyal Island, and Baptist Harbour.
- **Alvars:** Alvars are limestone plains that often resemble prairies or savannas, but with an expanse of bare bedrock. They contain an amazing diversity of life, including many species of rare plants and invertebrates largely confined to this type of habitat. Approximately 80-90% of North America's alvars are located in Ontario (Ontario Nature, 2006a).

Management Objectives and/or Guidelines

The Reserves are managed by Ontario Nature staff with oversight by Ontario Nature's Nature Reserve Committee. For many of its Reserves, Ontario Nature has entered into a formal stewardship agreement with local clubs whereby staff and club members work together as stewards of these protected areas. A management plan is prepared for each Nature Reserve to meet the unique protection requirements of the area, ranging from managing visitors through trail establishment to controlled burns to maintain wildlife habitat. All management decisions are based on scientific studies (FON, 1998).

Ontario Nature has issued a suite of interim management guidelines that are used until a management plan is developed for each Reserve. Permitted activities include:

- Nature appreciation and understanding.
- Walking, hiking, snowshoeing, and skiing on designated trails.
- Photography from designated trails.
- Scientific research – with approval of the Manager of Lands for Nature (Kettle, 2002).

Non-permitted activities include:

- Hunting, fishing, trapping, logging, mining, and quarrying.
- Use of motorized vehicles other than in designated areas when used for such purposes as maintenance, service, emergencies, or handicapped access.
- Horseback riding.
- Camping.
- Cycling.
- Unrestrained pets.
- Fires.
- Removal of native vegetation, animal, rock, and mineral materials.
- Harassment of wildlife.
- Trimming of vegetation except for approved trail development or maintenance (Kettle, 2002).

A non-permitted activity is occasionally approved when the activity pre-dates Ontario Nature ownership of the property, continuation of the activity builds community support for Ontario Nature protection efforts, and the activity does not have a detrimental impact on the natural values of the Reserve (Kettle, 2002).

An example of a management program implemented by Ontario Nature is the Kinghurst Forest Nature Reserve, a 280.7 ha area of mature maple-beech forest that is a rare example of a pre-settlement woodland, wetland ecosystems, and regenerating pastures and plantations (Richter et al., 2003). The management plan was completed in 2003 with a primary goal to "*...safeguard habitat for species at risk, protect biological diversity, set benchmarks for scientific research, and create opportunities for recreation and nature appreciation*" (Richter et al., 2003). The overall management goals for the property are to:

- Maintain or increase the area of contiguous mature forest and links to adjacent natural areas.
- Provide safe, low-impact opportunities for natural heritage education and recreation.

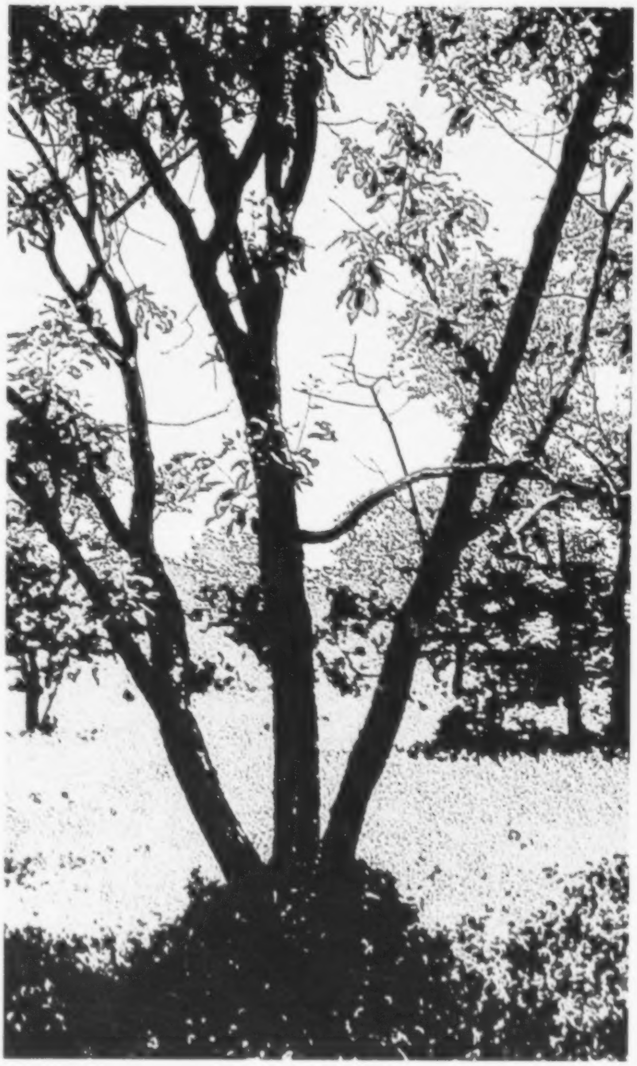


Image by T.J. Beechey

- Manage the property in such a way as to provide a model for protected area stewardship, including fostering community support and adapting management in response to changing environmental or social conditions (Richter et al., 2003).

Issue-specific management goals are to:

- Conserve indigenous populations of rare species.
- Protect the natural ecosystems of the Kinghurst Forest Nature Reserve against the detrimental impacts of non-indigenous species.
- Promote activities that foster the appreciation, understanding, and enjoyment of nature while ensuring that these activities meet Ontario Nature's policies.
- Facilitate the enhancement of anthropogenically degraded sites.
- Ensure that adjacent land use is not having a detrimental impact on the natural functions and value of the Reserve, and to work towards increasing the protection and stewardship of lands adjacent to the Nature Reserve.
- Ensure the long-term protection of the significant features of the property (Richter et al., 2003).

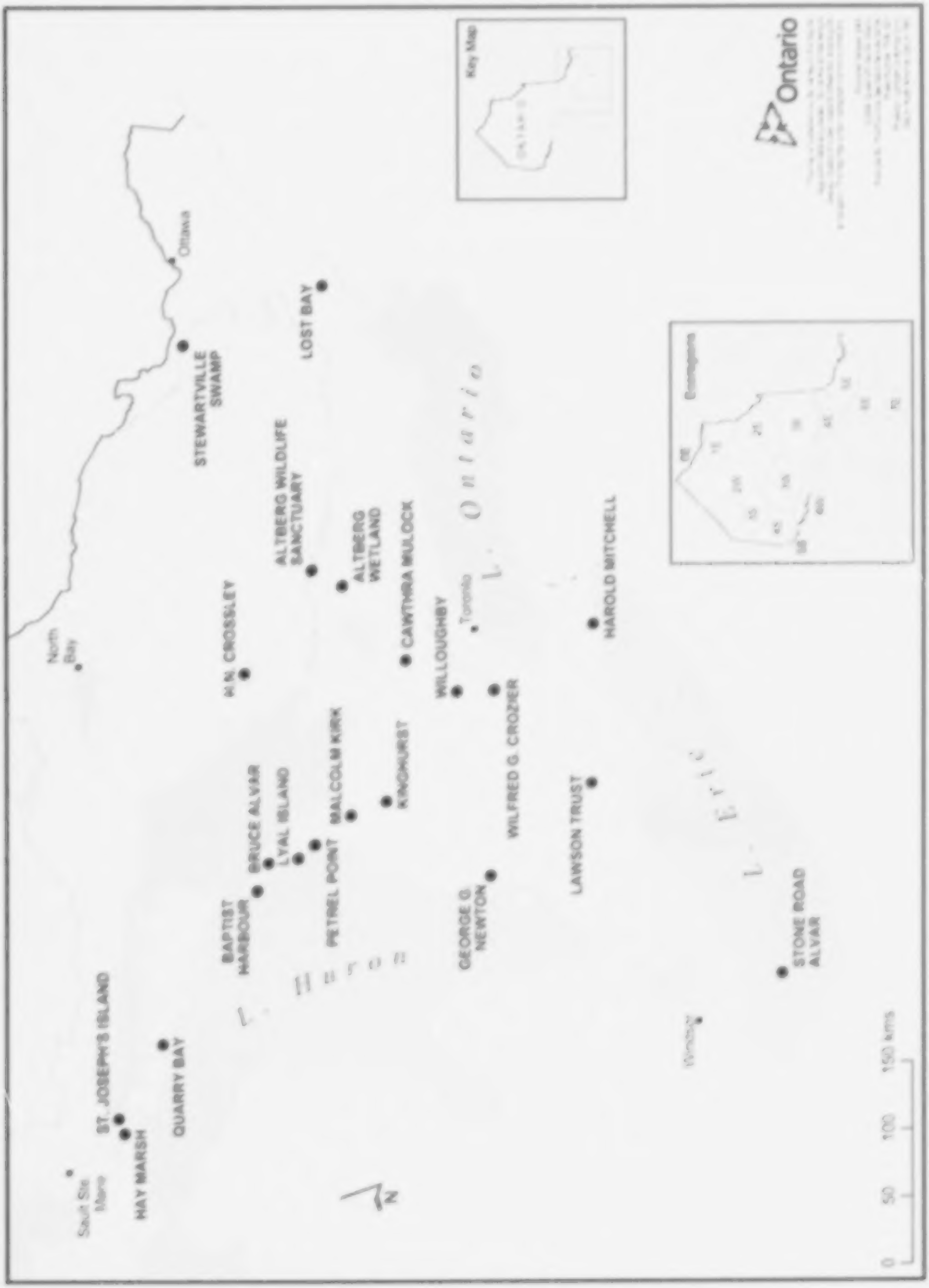
The Degree of Protection for Ontario Nature's Nature Reserves and the Corresponding IUCN Protected Area Management Category: A Preliminary Assessment

Ontario Nature's Nature Reserves are 'fully protected' areas because protection is the primary objective, the strength of the commitment is strong, they are protected year-round in perpetuity, and they exclude industrial activities and large-scale developments. These areas are permanently and specifically dedicated for protection, and normally managed through a management plan. Ontario Nature's Nature Reserves would qualify as IUCN Category Ia protected areas. In cases where activities on 'fully protected' Ontario Nature properties involve active habitat management, a Category IV protected area classification may apply.

Key Contact(s)

Ontario Nature
366 Adelaide Street, W., Suite 201
Toronto, Ontario
M5V 1R9
Telephone: 416-444-8419
Toll free: 800-440-2366
Fax: 416-444-9866
Website: *www.ontarionature.org*
Information: *info@ontarionature.org*

Figure 8-1. Ontario Nature's Nature Reserves in relation to Ecoregion boundaries.



8.4 Bruce Trail Conservancy Properties

Introduction

The Bruce Trail Committee was formed in 1960 to explore the feasibility of establishing a public trail along the entire Niagara Escarpment (BTA, 2004). Established in 1963, the Bruce Trail Association (BTA) has been instrumental in the creation of the Bruce Trail, a continuous footpath from Niagara to Tobermory encompassing 850 km of main trail and 250 km of side trails. In 2007, the BTA was renamed the Bruce Trail Conservancy (BTC).

The Bruce Trail is Canada's oldest and longest footpath (BTA, 2007) constructed by volunteers (Reid and Kirk, 1986). Since its development, the trail has emerged as an essential part of the Niagara Escarpment Parks and Open Space System, linking parks and natural features throughout the length of this unique landform (BTA, 1991:11). The Bruce Trail Conservancy completes its work by acquiring significant properties and successfully negotiating informal-rights-of-passage agreements with a number of landowners (Killan, 1993). To date, 154 properties and 22 easements encompassing 2,461 ha have been formally secured on the Niagara Escarpment and are accessible by the trail system ((B. Kümmling, personal communication).

Legislation and Policy Basis

Management of the Bruce Trail is complex because many agencies retain regulatory powers responsible for a variety of lands in the system. Many statutes are employed to manage the Niagara Escarpment Parks and Open Space System, including the *Niagara Escarpment Planning and Development Act*, *Conservation Authorities Act*, *Provincial Parks and Conservation Reserves Act*, *Planning Act*, and the *National Parks Act*.

The BTC does not regulate lands it acquires for the Bruce Trail. The BTC maintains the same rights as a private citizen under the provisions of the *Occupier's Liability Act* and the *Trespass Property Act*. Where the BTC has a 'handshake' agreement, or a licensing agreement, it protects itself with comprehensive public liability insurance (BTA, 1991:111). Many Bruce Trail Conservancy properties are held in trust for the people of Ontario by the Ontario Heritage Trust and are managed under the auspices of the *Ontario Heritage Act* (see Section 8.7 on page 312).

Protection Goal and/or Objectives

The protection goal and objectives are embodied in the BTC's mission statement and Charter objectives. The BTC is committed "*to establishing a conservation corridor containing a public footpath along the Niagara Escarpment, in order to protect its natural ecosystems and to promote environmentally responsible public access to this UNSECO World Biosphere Reserve*" (BTA, 2006). The Charter objectives are to:

- Establish and maintain for the use of the public a trail to be known as 'The Bruce Trail' along or adjacent to the Niagara Escarpment and the wild land associated therewith from the Niagara Gorge to Tobermory on the Bruce Peninsula, and to establish and maintain similar trails in such other areas as may be determined.
- Establish, maintain, and operate on the Bruce Trail and such other trails, camps, campsites, and other facilities to enable members of the public to participate in year-round hiking, recreation, physical fitness, and study.
- Engage in and promote the conservation of wildlife and natural resources.
- Accept donations, gifts, legacies, devices, and bequests.
- Acquire, receive, purchase, and hold real property and other rights therein for the purpose of securing the route of the Bruce Trail and other such trails, trailheads, camps, and campsites which may from time to time be established, maintained, and operated by the BTC (BTA, 1998b).

The *Niagara Escarpment Plan* recognizes the importance of securing a continuous route for the Bruce Trail, and gives it as much priority as establishing the Niagara Escarpment Parks and Open Space System because the trail is also considered an essential component of the system, linking parks and natural features (BTA, 1991:11).

Selection Criteria

The criteria used by the BTC to identify the optimum route for the Bruce Trail includes the need to:

- Provide diverse experiences for a variety of user groups within highly scenic areas of the Niagara Escarpment.
- Minimize disturbance of the surrounding environment by ensuring natural and cultural values are not threatened or compromised.
- Minimize the work of Trail construction and maintenance (BTA, 1991:27).

Selection is based on trail quality, ecology, design, and other criteria:

I. Trail Quality Criteria

- Establish a continuous trail corridor within the environs of the Niagara Escarpment between the sites of the two Bruce Trail cairns at Queenston and Tobermory linking parks and natural areas.
- Provide a practical route for hiking, and where possible, for cross-country skiing and snowshoeing.
- Provide panoramic vistas from positions of height such as the brow of the escarpment and hilltops.
- Provide access, where natural and cultural values will not be compromised, to points of interest and interpretative features such as significant natural features and cultural, historic, or archaeological sites.
- Provide access to beauty spots such as lookouts and waterfalls.
- Provide interesting approaches to impressive features such as high bluffs and river valleys.
- Present a variety in topography, cover types, and landscape settings.
- Offer a variety of hiking challenges to users with different abilities and aspirations.
- Provide periodic access to small urban centres for contrast, provision of supplies for backpackers and contact with local history and culture; but otherwise, to generally avoid urban areas (where a route through less developed areas will be followed).
- Generally avoid human-made structures unless these features would add to the interest of the Trail.
- Use forest cover for shade and shelter.
- Provide for access to drinking water, scenic streams, and shorelines.
- Include areas suitable for the location of overnight rest areas.
- Provide for visual and audio separation of the Trail from developed areas and features which detract from the hiking experience.
- Minimize contact with vehicular roads, except for access, and non-compatible trails or road allowances where conflicting recreational uses occur (e.g., off-road vehicles, all terrain vehicles, snowmobiles, motorcycles, mountain bikes, and to a lesser extent, horseback riding).
- Avoid unsafe locations such as steep, unstable slopes, or narrow ledges.
- Ensure that the Trail crosses roads, railway tracks, and private laneways, etc. at safe locations.
- Discourage improper use of the Trail where this is, or may become, a problem by setting the trail in a location suitable for pedestrian travel but not for other uses.
- Traverse remote areas distant from roads wherever possible.
- Be within reasonable proximity of established hiker amenities (e.g., existing privately operated campgrounds).
- Provide, where possible, for connections with other footpaths.
- Generally attempt to minimize conflicts amongst Trail users, local residents (especially adjacent landowners), and other recreationists.
- Provide for the protection of the rights of landowners.

II. Environmental Criteria

- Avoid sensitive cultural and ecological areas such as exposed archaeological sites, rare plant communities, wetlands, nesting, and deer wintering yards.
- Minimize possible disturbance or interference with adjacent land uses.
- Avoid steep slopes, poorly drained land or other areas where erosion, environmental damage, and/or excessive Trail maintenance would result.
- Skirt farmland or use hedgerows to cross agricultural areas and generally stay away from farm

buildings, livestock areas, and sensitive crops such as orchards and vineyards.
- Attempt to minimize impacts on recently reforested areas.
- Avoid routes that continually follow the top of the escarpment edge in areas where existing natural vegetation and natural regeneration on the brow would be damaged by the establishment of a footpath (the critical area extends back 10 m from the brow).
- Provide for the potential to rehabilitate land to a more natural state, using reforestation and the planting of native vegetation to provide visual screening for the Trail or to control erosion.
- Generally buffer adjacent landowners from possible negative impacts due to the use of the Trail, and be compatible with the natural and cultural character of the area.
- Provide for a location for the footpath that will minimize the disturbance to vegetation, wildlife, and ecologically sensitive terrain. In locations that are particularly sensitive to foot traffic, periodic reroutes of the Trail within the trail corridor may be desirable to allow for natural regeneration and to minimize the negative impacts of trampling.
- Otherwise comply with the resource protection objectives of the public conservation agencies.

III. Design Criteria

The Bruce Trail is a simple footpath, generally of an 'unimproved' type. Improvements should be made only to:

- Permit safe unobstructed passage for pedestrians in all seasons.
- Protect public or private property.
- Prevent erosion and otherwise minimize or eliminate adverse environmental impacts.

IV. Other Criteria

To help secure and construct a permanent route fo. .he Trail, the following guidelines are recommended:

- Where possible minimize the number of private properties crossed by the Trail and the number of landowners affected (sometimes, however, it may be useful to share the trail corridor between adjacent landowners in locations where the trail follows along property boundaries).
- The Trail should follow near property boundaries where this does not diminish the quality of the route.
- All other things being equal, the Trail should follow a relatively direct route.
- Where the existing route is well-established in an attractive natural area, a change in location should only occur if the alternative location is clearly superior.
- The Trail should be sited so as to minimize the need for Trail construction and work required to maintain the Trail.
- The location and design of the Trail should comply with the provisions of the *Niagara Escarpment Plan* and local municipal planning documents.
- Existing public land holdings should be used wherever alternative locations are not clearly superior (BTA, 1991).

General and specific provisions are made for the Bruce Trail in the *Niagara Escarpment Plan* with the objective of designing and locating the Trail in an ecologically sound manner (NEC, 2005).

Management Objectives and/or Guidelines

The Niagara Escarpment Parks and Open Space System consists of 131 parks (NEC, 2005), and the Bruce Trail links a number of these protected areas. The parks system is managed by a number of agencies that are guided by policies contained in the *Niagara Escarpment Plan*. The MNR is responsible for coordinating the involvement of agencies responsible for the Niagara Escarpment Parks and Open Space System (see the Niagara Escarpment in Section 6.14 on page 259). These agencies include seven Conservation Authorities (Niagara Peninsula, Hamilton Region, Halton Region, Credit Valley, Toronto and Region, Nottawasaga Valley, and Grey Sauble), the Bruce Trail Conservancy, the Niagara Parks Commission, OMAFRA (Ontario Ministry of Agriculture, Food, and Rural Affairs), the Ontario Heritage Trust, Parks Canada, the St. Lawrence Seaway Authority, municipalities, and other organizations that manage land in the public interest (BTA, 1991). Management of the Bruce Trail is achieved through cooperative, interagency programs that are based on the following principles:

- The management system will preserve and strengthen the role of the volunteer.

- Partnerships between Bruce Trail clubs and local agencies such as MNR District Offices, Conservation Authorities, municipalities, tourist associations, youth groups, and naturalist clubs are an important element of the system.
- Effective landowner relations for sections of the Trail on private lands and with landowners adjacent to the Bruce Trail Corridor are an essential component of the management system.
- Management decisions will be made by mutual agreement to the greatest extent possible.
- The Trail will be continuous in its marking and open to the public.
- Hikers are responsible for their own safety and comfort. Hiking on the Trail will be unregimented, and self-reliance will be encouraged.
- The BTC *Guide for Trail Workers* (as revised or amended from time to time) will be followed with regard for detailed construction and maintenance standards.
- The management system will reflect concern for the special needs of long distance hikers while maintaining the Trail for all users.
- Care will be taken in all Trail construction and other developments to maintain the natural character of the Trail and to ensure that natural and cultural values are not compromised or threatened.
- The Niagara Escarpment logo will be used where appropriate on interpretive, educational, and other material used by the BTC.
- Standardized signage developed by the BTC will be used along the length of the trail (BTA, 1991:103-104).

In 1997, the BTC implemented a Land Stewardship Program to care for Trail properties. The program has three elements:

- **Stewardship Plans:** The plans provide a comprehensive picture of the property, including history, land use and ecological significance. Plan recommendations guide long-term stewardship initiatives.
- **Land Steward:** Each property is cared for by a volunteer Land Steward.
- **Conservation Management:** Management involves implementation of the recommendations in the Stewardship Plans, which can include restoration, clean up, and installation of fences (BTA, 2002).

The Degree of Protection for the Bruce Trail Conservancy Properties and the Corresponding IUCN Protected Area Management Category: A Preliminary Assessment

Many Bruce Trail Conservancy properties are 'fully protected' areas because protection is the primary objective, the strength of the commitment is equivalent to being legislated, they are protected year-round and in perpetuity, and they exclude industrial activities and large-scale developments. These properties would qualify as IUCN Category II and III protected areas. Given that some properties do not qualify because they do not meet one or more of the criteria, a site by site assessment would be required.

Key Contact(s)

Bruce Trail Conservancy
P.O. Box 857
Hamilton, Ontario
L8N 3N9
Telephone: 905-529-6821,
Toll free: 800-665-HIKE (4453)
Fax: 905-529-6823
Website: www.brucetrail.org
Information:
info@brucetrail.org

Image by P.A. Gray

8.5 Carolinian Canada Signature Sites and Big Picture Core Habitats

Introduction

The Carolinian Life Zone is located on the northern edge of the eastern deciduous forest of North America. It contains the most urbanized and most intensively farmed area in Canada (Allen et al., 1990: vii) and many of the original ecosystems have been eliminated or significantly degraded. In response, World Wildlife Fund Canada, in concert with the Ontario Heritage Trust, The Nature Conservancy of Canada, and the Richard Ivey Foundation launched the Carolinian Canada Program in 1984 to secure and protect Carolinian Life Zone biodiversity. Specifically, the Carolinian Canada program is designed to:

- Develop a conservation strategy.
- Oversee completion of wildlife conservation projects with emphasis on endangered, threatened, rare, and extirpated species and their habitats, but not excluding other species requiring attention.
- Implement a natural areas protection program to pursue protection of priority areas.
- Encourage the development of an interagency management policy structure to govern activities of different agencies operating in the Carolinian Life Zone (Allen et al., 1990: vii).

Several other agencies, organizations, and individuals have made significant contributions to the Carolinian Canada program, including Wildlife Habitat Canada, Ontario Nature, the Ministry of Natural Resources, and Conservation Authorities. The success of the program led to the establishment of the Carolinian Canada Coalition. Over three decades the Coalition has evolved from an informal management committee and funding body to an incorporated non-profit charity. The Coalition continues to coordinate a conservation agenda involving major conservation groups in southwestern Ontario with international, federal, provincial, and local interests. As well, representatives from many sectors (i.e., agriculture, planning, forestry, stewardship, and education) participate on the Coalition Board.

Using county and watershed inventories available in 1984, 38 unprotected natural heritage sites (16,500 ha) were identified as critical to Carolinian Life Zone biodiversity, and are now known as Carolinian Canada Signature Sites (Fig. 8-2) (Eagles and Beechey, 1985; Johnson, 2005; M. Kanter, personal communication; Symmes and Reid, 1997). In 2000, Coalition members updated the conservation strategy using new field data, conservation science principles, and mapping technology. The resulting Carolinian Canada Big Picture project includes 140 Core Habitats across the Life Zone that encompass the most significant natural heritage sites in southwestern Ontario based on Natural Heritage Information Centre data (Jalava et al., 2000).

The Big Picture strategy provides a framework to extend conservation planning beyond existing "*islands of green*" and highlights the importance of relatively large Core Habitats and Natural Corridors that link the cores. This interconnected landscape will help maintain viable wildlife populations and perhaps encourage the return of species that have been extirpated from the area. Many of Ontario's most respected conservation scientists were involved in the GIS-based analysis that produced the Big Picture map, which provides a scientific context and rationale for local conservation initiatives and a source of information to coordinate future activities across jurisdictions (Fig. 8-3). It is important to note that not all original 38 Carolinian Canada Signature Sites are included in the 140 Big Picture Core Habitats since landscape-scale criteria were heavily weighted in the Big Picture analysis and the formal boundary of the Carolinian Life Zone (7E) was re-drawn for the Big Picture project.

Legislation and Policy Basis

Signature Sites and Big Picture Core Habitats are protected with a variety of tools and techniques. Most sites include several to hundreds of properties, resulting in a mosaic of protection mechanisms and protection status within each site. For example, several properties are protected under Conservation Easement by The Nature Conservancy of Canada, the Ontario Heritage Foundation, Ducks Unlimited, and other land trusts and community groups. Much of the land continues to be stewarded by private landowners, local groups (e.g., hunting associations, churches, and camps), and industry, many of whom are committed to short-term protection through tax incentive programs (i.e., CLTIP and MFTIP) or work with local conservation partners through private stewardship agreements (Johnson, 2005). Many Carolinian Canada Signature Sites and Big Picture Core Habitats are zoned and protected by First Nations, the *Niagara Escarpment Plan*, the *Greenbelt Act*, and municipalities. Many sites are owned and protected by Conservation Authorities under the auspices of the *Conservation Authorities Act*. Several sites are located within National and Provincial Parks. For example, Middle Island is now part of Point Pelee National Park, some of the Lake St. Clair Marshes are included in the St. Clair National Wildlife Area, and portions of the Oxley Poison Sumac Swamp, the Fonthill Sandhill Valley, and the Port Franks Wetlands and Forested Dunes are included within Provincial Parks.

Protection Goal and/or Objectives

The Coalition's mission is *"Protect and restore natural heritage in the Carolinian life zone for healthy, balanced and sustainable landscapes through stewardship, cooperation and research"* (Kanter, 2008a:3). The Coalition works in support of a commitment to ecoregional sustainability and stewardship, to promote understanding, and to catalyze effective action (Carolinian Canada Coalition, 2007). Specifically, the Coalition works to:

1. Preserve, protect, and restore the flora and fauna of the Carolinian Life Zone in southwestern Ontario by organizing and participating in environmental projects.
2. Conduct research relating to environmental issues affecting the Carolinian Life Zone in southwestern Ontario and to disseminate the results of such research to the public.
3. Educate and increase public understanding of the importance of conserving the natural features of the Carolinian Life Zone in southwestern Ontario by developing and offering educational materials and programs.

Carolinian Canada Coalition's vision for biodiversity is based on its commitment to the Big Picture project, which aims to create a "… *network of natural Cores and Corridors* [that] *is critical green infrastructure for thriving wild and human communities*" (Kanter, 2008a:4). The Carolinian Canada Coalition encourages the conservation community of southwestern Ontario to subscribe to a number of Big Picture goals, including:

- **Share the Vision:** To be successful, the Big Picture vision needs to be broadly accepted by government agencies, landowners, and residents as a road map to ecological health. Embedding the vision into a range of plans, strategies, and actions will hasten that acceptance.
- **Strengthen Incentives for Conservation:** Most of Carolinian Canada is in private hands, and sharing responsibility for the environment through economic incentives is a concept increasingly being adopted in Ontario and in other jurisdictions.
- **Inform and Educate for Conservation and Restoration:** To build a broad consensus about conservation priorities, it is necessary to inform rural landowners, urban residents, adults, and children.
- **Fund Land Securement and Restoration:** Achieving the Big Picture vision requires a long-term investment in securing and restoring key parts of the landscape (Reid, 2002).

The Carolinian Canada Coalition sponsors the development of specific strategic plans and programs in support of its mission. For example, the Coalition sponsored development of the *Carolinian Woodland Recovery Strategy* in 2007 with the goal: *"To re-establish healthy, functioning woodland ecosystems and recover associated SAR populations throughout Canada's Carolinian life zone"* (Jalava et al., in preparation).

Selection Criteria

The Carolinian Canada Coalition used 10 selection criteria to identify the 38 Signature Sites:

- **Representation:** The area is representative of at least one and preferably a characteristic pattern of environments and biotic community types not now found in sufficient amount within existing protected areas.
- **High Diversity:** The area has an unusually high diversity of biotic communities and associated plants and animals.
- **High Quality:** The area is characterized by relatively pristine conditions exhibiting low levels of disturbance due to logging, utility corridors, open pit mines, grazing, and other forms of land use change.
- **Large Size:** The area is large, thereby affording suitable amounts of habitat for species that require extensive areas, and ensuring the likelihood that the

biological features and their support environments can be protected.

- **Rare or Endangered Species:** The area provides habitat for species of plants and/or animals that are rare or endangered in Ontario or Canada.
- **Remnant Community:** The area contains remnants of one or more particular community types once common in the life zone, but now greatly reduced in extent.
- **Ecological Integrity:** The area includes critical environmental processes such as vital hydrological functions necessary for the maintenance of natural biotic communities, flora, and fauna.
- **Wildlife Concentration:** The area serves as a vital migratory stopover or a concentrated breeding site for colonial birds.
- **Linkage:** The area is linked to, or is a linkage among, other significant natural areas.
- **Landform:** The area represents a distinctive and unusual landform within the ecoregion, Ontario, or Canada (Eagles and Beechey, 1985:9).

The following principles were used to identify Core Habitats and Natural Corridors during the completion of the Big Picture map:

- *"Ensure replicable, transparent methodology applicable in a Geographic Information Systems (GIS) environment.*
- *Ensure that existing natural cover is included in the natural heritage system.*
- *Ensure that existing parks and protected areas are included.*
- *Ensure that all recognized areas of ecological importance are included.*
- *Favour larger intact natural areas, areas with more extensive interior habitat and regions with high percentage natural cover in selection of core natural areas.*
- *Reduce fragmentation of natural areas by increasing connectivity.*
- *Increase extent of natural and rehabilitation areas to a minimum of 30% natural cover per ecodistrict.*
- *Identify for protection all viable occurrences of globally rare elements and all significant concentrations of provincially rare elements.*
- *Where possible, ensure a minimum core size of 200 ha and a minimum corridor width of at least 200 m.*
- *Wherever practical, identify areas that contain soil types not represented or poorly represented in existing natural areas in order to prioritize sites for rehabilitation (to approximate historic vegetation patterns).*
- *Identify areas where restoration and rehabilitation can be accomplished most efficiently and practically by applying an algorithm that includes ecological, social and economic considerations.*
- *Modify methodology through consultation with the technical committee as issues and problems arise.*
- *Allow for future updates to data and methods as new information becomes available and knowledge improves"* (Jalava et al. 2000).

Management Objectives and/or Guidelines

In the past, Carolinian Canada programs focused on the securement and protection of priority sites. Currently, Carolinian Canada continues to guide the protection of the 38 sites (Ontario Heritage Trust, 2006a), but now focuses its efforts on conservation measures required to ensure the maintenance, enhancement, and protection of the entire Canadian portion of the Carolinian ecosystem through the Big Picture project, including streams, wetlands, forests, and prairies (Symmes and Reid, 1997:5). Education, cooperation, and community action are the principal elements of Carolinian Canada Coalition's approach to ecosystem management.

Carolinian Canada Signature Sites are protected and managed through securement and voluntary stewardship agreements with landowners. Carolinian Canada was the first program in Canada to use the voluntary "handshake" agreement to encourage commitment to conservation by private landowners. An important aspect of the voluntary program is the Natural Heritage Stewardship Award – a plaque given to landowners in return for a promise to protect natural features of their land. A *Statement of Conservation Interest* has been prepared for each Carolinian Canada Site, however, the approval process has not been completed (D. van Hemessen, personal communication).

Big Picture Core Habitats are protected and managed through a network of conservation groups and landowners. A Conservation Action Planning (CAP) process is underway to engage community leaders in developing targeted CAPs that link and integrate the

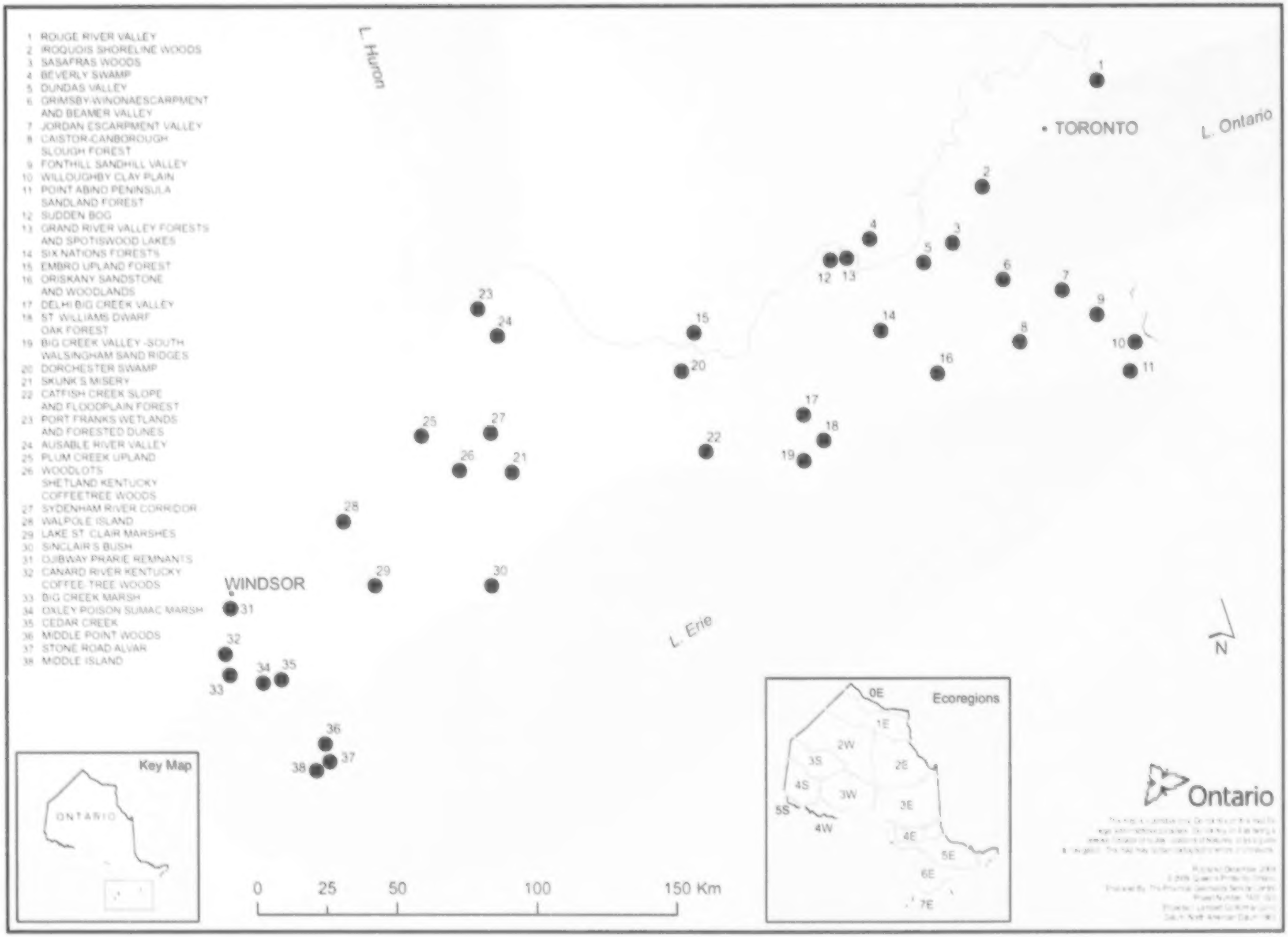

1 ROUGE RIVER VALLEY
2 IROQUOIS SHORELINE WOODS
3 SASAFRAS WOODS
4 BEVERLY SWAMP
5 DUNDAS VALLEY
6 GRIMSBY-WINONAESCARPMENT AND BEAMER VALLEY
7 JORDAN ESCARPMENT VALLEY
8 CAISTOR-CANBOROUGH SLOUGH FOREST
9 FONTHILL SANDHILL VALLEY
10 WILLOUGHBY CLAY PLAIN
11 POINT ABINO PENINSULA SANDLAND FOREST
12 SUDDEN BOG
13 GRAND RIVER VALLEY FORESTS AND SPOTISWOOD LAKES
14 SIX NATIONS FORESTS
15 EMBRO UPLAND FOREST
16 ORISKANY SANDSTONE AND WOODLANDS
17 DELHI BIG CREEK VALLEY
18 ST WILLIAMS DWARF OAK FOREST
19 BIG CREEK VALLEY -SOUTH WALSINGHAM SAND RIDGES
20 DORCHESTER SWAMP
21 SKUNK'S MISERY
22 CATFISH CREEK SLOPE AND FLOODPLAIN FOREST
23 PORT FRANKS WETLANDS AND FORESTED DUNES
24 AUSABLE RIVER VALLEY
25 PLUM CREEK UPLAND
26 WOODLOTS SHETLAND KENTUCKY COFFEETREE WOODS
27 SYDENHAM RIVER CORRIDOR
28 WALPOLE ISLAND
29 LAKE ST. CLAIR MARSHES
30 SINCLAIR'S BUSH
31 OJIBWAY PRARIE REMNANTS
32 CANARD RIVER KENTUCKY COFFEE-TREE WOODS
33 BIG CREEK MARSH
34 OXLEY POISON SUMAC MARSH
35 CEDAR CREEK
36 MIDDLE POINT WOODS
37 STONE ROAD ALVAR
38 MIDDLE ISLAND
L. Huron
TORONTO
L. Ontario
WINDSOR
L. Erie
N
Key Map
ONTARIO
Ecoregions
0E
1E
2W
2E
3S
3W
3E
4S
4W
4E
5S
5E
6E
7E
0
25
50
100
150 Km
Ontario

Figure 8-2. Carolinian Canada Sites in Ontario in relation to Ecoregion boundaries.

goals and objectives of more than 50 recovery strategies in the Carolinian Life Zone.

In addition, the Carolinian Canada Coalition informs and guides protection, stewardship, and restoration of biodiversity in the Carolinian Life Zone through extension materials and programs, including:

- *A Non-Profit Business Plan for Greening the Future of Southwestern Ontario* (Kanter, 2008a).
- *Youth Helping Species at Risk Training Manual* (Kanter, 2008b).
- *Assess Your Species at Risk Habitat Footprint* (Solymar, 2007).
- *The Natural Treasures of Carolinian Canada* (Johnson, 2007).
- *Carolinian Canada Signature Sites* (Johnson, 2005).
- *Species at Risk in Carolinian Canada and How to Help* (Kanter et al., 2004).
- *The Big Picture* (Carolinian Canada Coalition, 2008).
- *Carolinian Canada Factsheet Series* (Centre for Land and Water Stewardship, 1994).
- *Caring for Your Land, A Stewardship Handbook for Carolinian Canada Landowners* (Hilts and Mitchell, 1998).

In 2008, the Carolinian Canada Coalition (CCC) established preliminary measures to gauge its success:

- **Areas of Action – Ripples on the Landscape:** Enhance conservation action in at least 75% of CCC Biodiversity Hotspots, in partnership with members and stakeholders.
- **Targeting Biodiversity – Ecosystem Stewardship:** Work with partners to obtain stakeholder commitments to Ecosystem Best Practices (EBP) and target at least 20% of species at risk.
- **Caring for Nature Ethic – Where Culture Meets Nature:** Provide capacity-building opportunities and tools to 200 stewardship leaders annually across a variety of sectors (Kanter, 2008a:8).

The Degree of Protection for Carolinian Canada Signature Sites and Big Picture Core Habitats, and the Corresponding IUCN Protected Area Management Category: A Preliminary Assessment

Carolinian Canada Signature Sites and Big Picture Core Habitats are 'fully protected' where protection is the primary objective, the strength of the commitment is equivalent to being legislated, they are protected year-round in perpetuity, and they exclude industrial activities and large-scale developments. It is likely that many Signature Sites and Big Picture Core Habitats could qualify as Category Ia, III, or IV protected areas. However, each area requires evaluation to determine protection status and the specific IUCN protected area category.

Key Contact(s)

Carolinian Canada
1017 Western Road
London, Ontario
N6G 1G5
Telephone: 519-433-7077
Fax: 519-913-2449
Website: *www.carolinian.org*
Email: *info@carolinian.org*

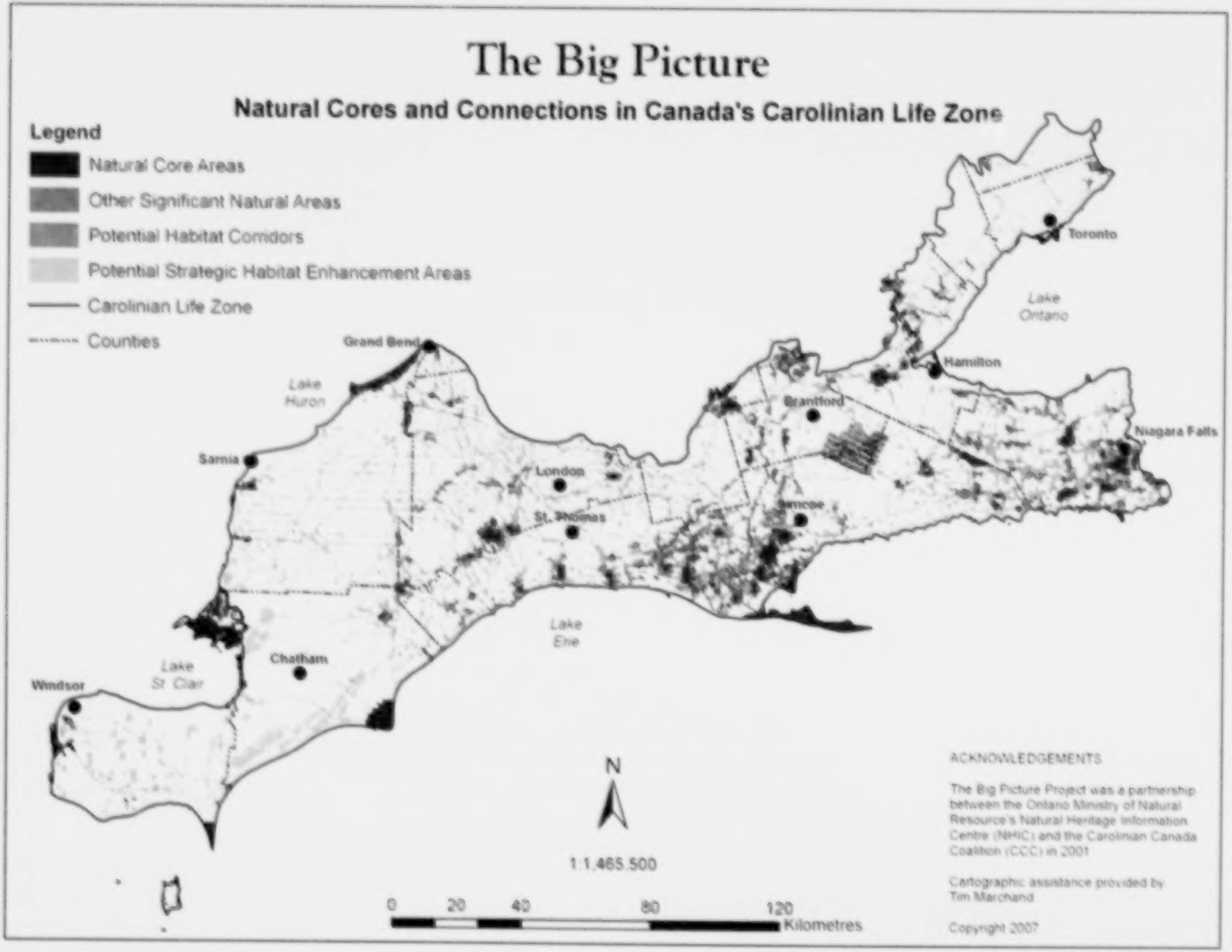

The Big Picture
Natural Cores and Connections in Canada's Carolinian Life Zone
Legend
Natural Core Areas
Other Significant Natural Areas
Potential Habitat Corridors
Potential Strategic Habitat Enhancement Areas
Carolinian Life Zone
Counties
Grand Bend
Lake Huron
Sarnia
London
St. Thomas
Brantford
Simcoe
Hamilton
Toronto
Lake Ontario
Niagara Falls
Lake Erie
Chatham
Windsor
Lake St. Clair
N
1:1,465,500
0
20
40
80
120
Kilometres
ACKNOWLEDGEMENTS
The Big Picture Project was a partnership between the Ontario Ministry of Natural Resource's Natural Heritage Information Centre (NHIC) and the Carolinian Canada Coalition (CCC) in 2001
Cartographic assistance provided by Tim Marchand
Copyright 2007

Figure 8-3. The Big Picture program map developed by Carolinian Canada.

8.6 Provincial Tax Incentive Programs

Introduction

Private landowners serve an important role in protecting natural heritage values. They own more than 90% of all lands south of the Canadian Shield as well as property in other settled parts of the Province. Even though natural heritage assets have been highly fragmented by human settlement, many assets remain intact on private lands, such as significant biological or geological features, wetlands, and important habitats of species that are classified as species of special concern, threatened, and endangered. These natural heritage assets can make significant contributions to a protected areas network in Ontario (MNR, 1997g). Various government and non-government programs have been initiated to advance natural heritage protection through private land stewardship, including:

- Informing landowners about natural values.
- Developing agreements with landowners.
- Issuing stewardship awards to recognize contributions by landowners.
- Providing landowners with resource management advice.
- Tax incentive programs (Box 8-1).

The Conservation Land Tax Incentive Program (CLTIP) recognizes, encourages, and supports the long-term protection of significant, privately-owned conservation lands. Landowners who participate in the program are exempt from property taxes on eligible conservation lands. The Managed Forest Tax Incentive Program (MFTIP) recognizes, encourages, and supports the long-term maintenance of healthy forests on private land in Ontario. Each Managed Forest Tax Incentive Program is conducted according to an approved forest management plan (Krahn, 1999). The property taxes of landowners who qualify to participate in the program are reduced.

Legislation and Policy Basis

These tax incentive programs are implemented under the auspices of the *Assessment Act* and the *Fair Municipal Finance Act* and regulations.

Box 8-1. Conservation Land Tax Incentive Program and Managed Forest Tax Incentive Program properties.

For the 2007 tax year, 16,460 landowners protected 214,195 ha under the auspices of the Conservation Land Tax Incentive Program (M. Fraser, personal communication), and 10,700 landowners participated in the Managed Forest Tax Incentive Program encompassing 725,000 ha (J. Oatway, personal communication).

Protection Goal and/or Objectives

The primary purpose of the Conservation Land Tax Incentive Program is to "*recognize, encourage and support the long-term private stewardship of Ontario's provincially significant conservation lands by providing property tax relief to those landowners who agree to protect the natural heritage values on their property*" (Government of Ontario, 1998; MNR, 2000d). The goal of the Managed Forest Tax Incentive Program is to "*maintain or enhance healthy forests that contribute to the maintenance of a healthy environment*" (MNR, 1997g). Objectives include efforts to encourage ecologically sustainable management of forests on private lands, and greater knowledge and awareness of forest management practices by private landowners.

Selection Criteria

The Conservation Land Tax Incentive Program

To qualify for the Conservation Land Tax Incentive Program, conservation land must be considered significant by the Ministry of Natural Resources. Eligible categories of land under the Conservation Land Tax Incentive Program include:

- Provincially Significant Wetlands.
- Provincially significant Areas of Natural and Scientific Interest.

- Habitat of endangered species. An endangered species is any native species that *"is at risk of extinction or extirpation throughout all or a significant portion of its Ontario range."* For the purposes of the Conservation Land Tax Incentive Program, endangered species are those listed in regulation under Ontario's *Endangered Species Act*. At present, 82 species[1] are protected as endangered under the *Endangered Species Act*. Endangered species habitat is the habitat that is necessary to ensure the survival of existing or recently documented populations of endangered species. The habitat requirements of various endangered species are set out in approved recovery plans, management plans, or ministry guidelines. These plans and guidelines are used to map endangered species habitat on a species-by-species and site-by-site basis.
- Areas designated as Escarpment Natural Areas in the Niagara Escarpment Plan.
- Other conservation lands owned by non-profit, charitable organizations that, through their management, contribute to provincial conservation and natural heritage objectives and that do not fit specifically into one of the above categories (MNR, 2006j).

The area of a conservation property must be at least one-fifth of a hectare. The Conservation Land Tax Incentive Program does not provide tax relief for buildings or other improvements, or for the associated land. In addition, the MNR considers that two-fifths of a hectare (one acre) of land under and around a building or improvement is used for its support and is not eligible.

The Managed Forest Tax Incentive Program

The following criteria are used to determine the suitability of a property for the Managed Forest Tax Incentive Program:

- The land is in Ontario.
- The land is owned by a Canadian citizen(s) or permanent resident(s); a Canadian corporation, partnership or trust; or a Conservation Authority
- The forest is at least 4 ha excluding all residences and it is on one property with one municipal roll number.

The program requires forests to have a minimum number and size of trees on each hectare to qualify for the program. A forest must have at least:

- 1,000 trees of any size/ha, or
- 750 trees/ha measuring more than 5 cm at Diameter at Breast Height (DBH), or
- 500 trees/ha measuring more than 12 cm at DBH, or
- 250 trees/ha measuring more than 20 cm at DBH.

Some area on an eligible property can be an open space with fewer than the minimum trees if the area is a:

- Natural area covering less than 10% of the total eligible forest area.
- Natural area, such as a swamp, beaver flood, open water, or an area that does not have enough soil to support trees through normal forest management activities. The natural area can not be more than 25% of the total eligible forest area.

Land is **not** eligible if it is:

- Subject to a registered plan of subdivision.
- Licensed under the *Aggregate Resources Act*, or is zoned for aggregate extraction (gravel pits) in areas outside the jurisdiction of the *Aggregate Resources Act*.
- Owned by a municipal, provincial, or federal government (MNR, 2006k).

Management Objectives and/or Guidelines

The Conservation Land Tax Incentive Program

The CLTIP is voluntary and landowners must apply each year to participate in the program. Landowners applying to the program must agree to maintain their property as conservation land and refrain from activities that would degrade or destroy the natural values of the site. Permitted activities and uses depend on the type of conservation land, and are determined in consultation with the MNR. Participating landowners must permit authorized inspectors to assess the property from time to time (MNR, 2006j).

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[1] This number changes in response to assessments completed by the Committee on the Status of Species at Risk in Ontario (COSSARO). As of August 2009, 186 species were listed under the *Endangered Species Act* – 12 extirpated, 82 endangered, 48 threatened, and 44 of special concern (special concern species are not protected under the ESA) (S. Casselman, personal communication).

The Managed Forest Tax Incentive Program

Qualification for the MFTIP requires that the landowner develop and include a 20-year managed forest plan with the application. The plan outlines how the landowner will actively manage the forest – in other words, do what is needed to keep the forest healthy. The plan provides the following information:

- Property owner, location, and history information.
- Property map and surrounding area.
- Landowner objectives.
- Detailed property map.
- Managed forest compartment descriptions – inventory form.
- Ten-year activity summary.
- Report of activities.
- Contacts and notes (MNR, 2006k).

The Degree of Protection for Conservation Land Tax Incentive Program and Managed Forest Tax Incentive Program Properties and the Corresponding IUCN Protected Area Management Category: A Preliminary Assessment

Conservation Land Tax Incentive Program lands are specifically identified for protection of biodiversity values while Managed Forest Tax Incentive Program lands are not. However, neither type of area is permanently dedicated for protection. Therefore, while these lands contribute to biodiversity values, they do not qualify as 'fully protected' areas and therefore do not qualify for classification under the IUCN protected areas system. In cases where a property is protected through another, formal mechanism (e.g., a property owned and protected by a conservation organization), it may qualify as a 'fully protected' area and for inclusion in the IUCN protected area classification system.

image by F.A. Gray

Key Contact(s)

CLTIP Program
Strategic Coordination and Integration Branch
Ministry of Natural Resources
300 Water Street
Peterborough, Ontario
K9J 8M5
Telephone: 705-755-1204
Toll free: 800-268-8959
Fax: 705-755-1201
Website: *www.mnr.gov.on.ca/en/Business/CLTIP/index.html*

MFTIP Program
Forests Branch
Ministry of Natural Resources
300 Water Street
Peterborough, Ontario
K9J 8M5
Telephone: 705-755-3222
Fax: 705-755-1971
Website: *www.mnr.gov.on.ca/en/Business/Forests/2ColumnSubPage/STEL02_166335.html*

8.7 Ontario Heritage Trust Properties

Introduction

Originally established in 1967, the Ontario Heritage Trust (formerly the Ontario Heritage Foundation) is a non-profit agency of the Government of Ontario dedicated to the identification, preservation, protection, and promotion of Ontario's heritage. The Ontario Heritage Trust holds 24 built heritage sites and manages a portfolio of more than 140 natural heritage properties, including over 100 properties that are part of the Bruce Trail (Ontario Heritage Trust, 2006b). Specifically, the Ontario Heritage Trust holds approximately 3,700 ha of protected land in trust for Ontarians and protects 1,200 ha of natural heritage land through Heritage Conservation Easements. These areas include endangered species habitats, wetlands, sensitive features, and nature reserves. In addition, other organizations have been assisted by the Ontario Heritage Trust in securing 14,499 ha (Ontario Heritage Trust, 2006c).

Legislation and Policy Basis

The Ontario Heritage Foundation was created under the auspices of the *Ontario Heritage Foundation Act*. In 2005, the *Ontario Heritage Act* was amended and the agency was renamed the Ontario Heritage Trust. The amendments strengthened the agency's ability to carry out its mandate, enhanced its role in natural heritage conservation, and provided the Ontario Heritage Trust the power to advise the Minister of Culture on heritage designations of properties of provincial significance (Ontario Heritage Trust, 2006c). Areas or portions of areas that have been procured through the Ontario Heritage Trust may also be legislated through other statutes such as the *Conservation Authorities Act*, *Oak Ridges Moraine Conservation Act*, or *Niagara Escarpment Planning and Development Act*.

Protection Goal and/or Objectives

The *Ontario Heritage Act* outlines the objectives of the Ontario Heritage Trust, which include:

- Promoting the importance of heritage conservation.
- Preserving and protecting provincially significant built, cultural, and natural heritage sites.
- Upholding and advocating the highest standards of conservation.

Image by P. Kor

- Demonstrating the adaptive reuse of heritage properties.
- Advising the Minister of Culture on designation of provincially significant properties throughout Ontario.
- Commemorating important heritage sites, events, and people with plaques throughout the province.
- Celebrating community heritage.
- Encouraging young people to get involved in heritage activities.
- Raising revenue to support heritage activities (Ontario Heritage Trust, 2006d).

Selection Criteria

Natural heritage properties that are considered provincially significant include:

- A wildlife habitat area or corridor.
- Source water area.
- Areas of ecological representation.
- Large woodlands or wetlands and connecting linkages.
- Key trails that have been identified in reports, databases, or mapping published by the province (Ontario Heritage Trust, 2006c).

Other examples include lands that have been identified in provincial plans and lands that attract high recreational interest.

Management Objectives and/or Guidelines

These properties are managed for a variety of natural asset values, including provincially significant Areas of Natural and Scientific Interest, Provincially Significant Wetlands, and lands to secure the Bruce Trail. Stewardship agreements are in place for most properties. With few exceptions, the custodians of these properties are Conservation Authorities, the Ministry of Natural Resources, or local Ontario Land Trust Association members.

The Degree of Protection for Ontario Heritage Trust Properties and the Corresponding IUCN Protected Area Management Category: A Preliminary Assessment

Many Ontario Heritage Trust properties protect biodiversity, the strength of the commitment is equivalent to being legislated, the properties are protected year-round in perpetuity, and industrial activities and large-scale developments are excluded. Therefore, many properties could qualify as IUCN Category Ia, III, or IV protected areas. Assignment to a specific IUCN protected area category would require a site-by-site assessment.

Key Contact(s)

Ontario Heritage Trust
10 Adelaide Street East
Toronto, Ontario
M5C 1J3
Telephone: 416-325-5000
Fax: 416-325-5071
Website: *www.heritagefdn.on.ca*

8.8 Conservation Easements

Introduction

A Conservation Easement[1] is a legal agreement between a landowner and a recognized conservation body. It enables a landowner and a conservation body to work together to protect a property for conservation purposes. Conservation Easements normally are registered on title, meaning that they bind all subsequent landowners as well. In essence, Conservation Easements:

- Facilitate the protection of valuable habitat and other land-based features on private land without the full expense of land acquisition.
- Provide permanent protection of habitat on parcels that are not for sale.
- Potentially provide income tax benefits for landowners who wish to donate a Conservation Easement.
- Allow land to remain within the local government's property tax base (although the Conservation Easement portion may receive special tax relief concessions in some jurisdictions).
- Allow land to continue to be managed by the private landowner, thus permitting the landowner to play an active role in land stewardship.

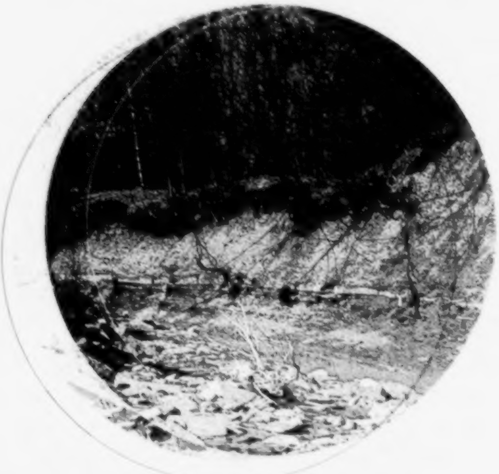

Image by T.J. Beechey

- Provide flexibility – each Conservation Easement could be negotiated to suit the particular needs of the conservation agency and the landowner, and the features on the land.
- Provide a mechanism for dispute resolution between, for example, family members or other parties with diverse interests (Silver et al., 1995:4-5).

Legislation and Policy Basis

The *Conservation Land Act* allows a landowner to grant a Conservation Easement to, or enter into a covenant with, a conservation body "*for the conservation, maintenance, restoration, or enhancement of all or a portion of the land or wildlife on the land or for access to the land for these purposes*" (Silver et al., 1995:15). The *Conservation Land Act* broadly defines conservation body as:

- The Federal and Provincial Government and associated agencies.
- A Band as defined in the *Indian Act*.
- The Council of a municipality.
- A Conservation Authority.
- A non-profit corporation under the federal or provincial corporation statutes that is a charity registered under the *Income Tax Act*.
- A trustee of a charitable foundation that is a charity registered under the *Income Tax Act* (Statutes of Ontario, 1990d).

In addition, a number of other statutes make provisions for the registration of agreements on title for conservation purposes. For example, agricultural easements can be created under authority of the *Agricultural Research Institute of Ontario Act*. Similar to the Ontario Heritage Trust (see Section 8.7 on page 312), the Agricultural Research Institute of Ontario may enter into and register agreements "*for the conservation, protection, or preservation of agricultural lands*" (Silver et al., 1995:17). Other statutes that make provision for easements include the *Crown Forest Sustainability Act, Fish and Wildlife Conservation Act, Ministry of Government Services Act, Municipal Act, Ontario Water Resources Act, Planning Act*, and the *Public Lands Act* (Silver et al., 1995:18). Readers interested in detailed reviews of easement tools and techniques should consult Attridge (1994, 1997, 1998), Denhez (1992), Reid (1987), and Silver et al. (1995).

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[1] Heritage Conservation Easements including Natural Heritage Conservation Easements are discussed in Section 8.7 – Ontario Heritage Trust Properties.

Protection Goal and/or Objectives

A Conservation Easement allows a landowner to simultaneously use the property while protecting its natural asset values (Environment Canada, 2007c). Under the *Conservation Land Act*, Conservation Easements can be entered into for the "*conservation, maintenance, restoration or enhancement of….the land or wildlife [or] …access for these purposes*" (Statutes of Ontario, 1990d). Within this broad statement, a Conservation Easement can be used to establish provisions for providing access, resource management, heritage value protection, location of trails, or other complementary activities. Conservation Easements can be as different and distinctive as the property values they are designed to protect.

Selection Criteria

Through the *Conservation Land Act*, a landowner may grant a Conservation Easement:

- To conserve, maintain, restore, or enhance all or a portion of the land or wildlife on the land.
- To protect water quality and quantity, including drinking water sources.
- To protect and manage a watershed.
- To conserve, preserve, and protect land for agricultural purposes.
- For purposes prescribed by the regulations.
- To allow access to land for the above purposes (Statutes of Ontario, 1990d).

Management Objectives and/or Guidelines

A typical easement process begins with an expression of interest in entering into a Conservation Easement, either by the landowner or a conservation organization. A property inspection and a preliminary inventory is completed, followed by negotiations, and in some cases a draft management plan for the property. After the landowner has received independent legal and financial advice, an agreement is completed. The agreement is then registered on title at a Registry Office to serve as notice to future purchasers of the land that the title is subject to the terms of the Conservation Easement.

Conservation Easements are designed to promote long term conservation of natural assets. Once signed, landowners and conservation organizations are obliged to honour the conditions of the agreement. The landowner has stewardship responsibilities and the conservation organization maintains contact, monitors, and keeps records on the Easement. Because a Conservation Easement represents an agreement between two or more parties, a landowner can modify or withdraw from the agreement by mutual consent. Under some circumstances, a conservation organization can elect to have a Conservation Easement modified or removed, sold, or passed on (assigned) if it involves another qualified conservation body. Under the auspices of the *Conservation Land Act*, the Ministry of Natural Resources must be involved in plan modifications or with withdrawl proposals.

A Conservation Easement can provide additional or increased protection of land above any existing municipal land-use planning description but cannot decrease the level of protection (e.g., by allowing for land use activities not permitted under a land use planning designation). If a landowner with a Conservation Easement on the property elects to undertake a development project, it is subject to provisions in the *Planning Act* in addition to conditions contained in the easement agreement. Where a municipality retains authority to expropriate, it may expropriate a Conservation Easement held by the conservation organization. This process, however, is subject to the *Expropriation Act*.

The provincial government monitors the management of Conservation Easements. The Provincial Public Trustee also monitors and regulates the activities of charitable organizations, and ensures that charities operate and use their properties, including Conservation Easements, in an appropriate manner. Charities are required to operate solely in the public interest and follow provincial and federal regulation. Under the federal law, charities are required to report annually.

The Degree of Protection for Conservation Easements and the Corresponding IUCN Protected Area Management Category: A Preliminary Assessment

A Conservation Easement that protects biodiversity, where the strength of the commitment is equivalent to being legislated, where the property is protected year-round in perpetuity, and where industrial activities and large-scale developments are excluded, would qualify as an IUCN Category Ia, III, or IV protected area. For example, a Conservation Easement cared for by a Land Trust (see Section 8.9 on page 317) committed to protecting the site in perpetuity would likely qualify for inclusion in the IUCN protected area classification system. In cases where permanence is not a condition of protection, the Conservation Easement would qualify as a 'partially protected' area.

Key Contact(s)

Ecological Gifts Program
Canadian Wildlife Service – Ontario
Environment Canada
4905 Dufferin St.
Toronto, Ontario
M3H 5T4
Telephone: 416-739-4286
Fax: 416-739-5845
Website: www.on.ec.gc.ca/ecogifts/easements-e.html
Information: Ontario@ec.gc.ca

Image by P.A. Gray

8.9 Land Trust Properties

Introduction

A Land Trust is "*a charitable organization that, as all or part of its mission, actively works to conserve land by undertaking or assisting in land or conservation agreements, or by engaging in the stewardship of such land or conservation agreements*" (Canadian Land Trust Alliance, 2005:3). Land Trusts are usually volunteer-based organizations that educate the public about land conservation, promote good land stewardship practices, and work with private landowners to protect valuable land. Land Trusts can be local, regional, or nationwide in focus (Attridge, 1999; Hilts and Reid, 1993; Lynch-Stewart et al., 1996:12). Normally, Land Trusts are funded through membership dues and donations, and vary in size from small trusts operated by volunteers to larger organizations with professional staff who manage thousands of hectares (Rideau Waterway Land Trust, 1999). Land Trusts encompass wilderness, agricultural and other lands, and water and facilities that have a natural, cultural, or heritage significance to local communities (OLTA, 2007a, b).

Legislation and Policy Basis

Land Trusts are incorporated as non-profit, registered charities under the *Income Tax Act*. This status allows land trusts to accept donations of land, money, and Conservation Easements, and in return, issue receipts that will allow the donor to claim various tax benefits.

Protection Goal and/or Objectives

While their individual goals may differ, most Land Trusts share the following characteristics:

- Non-government, but operate for the public benefit.
- Usually registered as charitable organizations.
- Dedicated to the protection and management of natural areas or open space agricultural landscapes.
- Work directly with specific parcels of land through purchase, donation, or cooperative landowner programs.
- Community supported through memberships, donations, and volunteer involvement.

Selection Criteria

Criteria for selecting property varies according to the priorities of each Land Trust. For example, the Rideau Waterway Land Trust's mission is "*to protect and improve lands of natural, aesthetic or historic value for the benefit of future generations. The land trust foundation will focus its activities on the landscape that can be viewed from the Rideau Canal and the Tay Canal*" (Rideau Waterway Land Trust, 1999). Similarly, the Georgian Bay Land Trust aims to "*preserve and protect unique sites of cultural, environmental or historic value along the eastern shore of Georgian Bay and to provide public education about these sites and land conservation in general*" (Georgian Bay Land Trust, 1999).

Management Objectives and/or Guidelines

While all Land Trusts are unique, they share a number of qualities. Land Trusts:

- Protect and manage areas of natural, cultural, and historical value.
- Are non-governmental organizations that operate for public benefit.
- Secure and protect heritage sites through land purchase or donation, conservation easements, or programs to cooperate with landowners.
- Are supported by the community through memberships, donations, and volunteers (Ontario Nature, 2006b).

Often, Land Trusts are managed by a volunteer Board of Directors, which establishes organizational management, land acquisition, and management priorities. For example, the Georgian Bay Land Trust has a Property Review Committee that examines potential properties. Suitable uses – as mutually agreed to with the donor, the community, and the Land Trust – are recommended. Upon acceptance, markers and signs may be placed on the property and its use monitored by a Trust representative or through agreement with established area associations (Georgian Bay Land Trust, 1999).

In the case of the Rideau Waterway Land Trust, the Board of Directors manages an endowment fund to ensure that funds will be available for the care, in perpetuity, of land entrusted to the foundation. A portion of all moneys donated to the Trust for land acquisition projects is set aside in the endowment fund and managed by an Investment Committee (Rideau Waterway Land Trust, 1999).

Ontario Land Trust Alliance

The Ontario Land Trust Alliance (OLTA) was incorporated and registered as a charity in 2002 with a mandate to encourage the Land Trust movement throughout Ontario (OLTA, 2007a). The OLTA has almost tripled in size in the past decade – from the original 14 founding members in 1997 to about 40 member organizations in 2007 (Box 8-2; K. Allan, personal communication). Major programs include:

- **Ontario Land Trust Assistance Program:** The OLTAP receives funding support from the Ministry of Natural Resources and Environment Canada – Ontario Region. Grants are made available for land securement costs associated with donations or purchase of title or Conservation Easements involving ecologically and culturally significant lands. Since 2003, the OLTAP program has supported the purchase or protection of 2,600 ha of lands.

- **OLTA Government Relations Program:** The OLTA and its members work in partnership with many government agencies. At the local level, they are often consulted on official plans and land-use development, and at the provincial and national government levels they are consulted in the areas of policy, legislation, tax incentives, and acquisition funding. The OLTA works closely with other environmental groups like Ducks Unlimited Canada and The Nature Conservancy of Canada, government and affiliated bodies like Conservation Ontario, and the Ontario Heritage Trust.

Box 8-2. Member groups of the Ontario Land Trust Alliance.

- Ahmic Lake Land Trust
- Algoma Highlands Conservancy
- Blue Mountain Watershed Trust
- Canada South Land Trust
- Thousand Islands Watershed Land Trust
- Couchiching Conservancy
- D.I.A.M.O.N.D.S. Conservation Land Trust
- Escarpment Biosphere Conservancy
- Georgian Bay Land Trust
- Haliburton Highlands Land Trust
- Hamilton Naturalists' Club
- Hastings-Prince Edward Land Trust
- Kawartha Heritage Conservancy
- Kensington Conservancy
- Lake Clear Conservancy
- Lake Superior Conservancy & Watershed Council
- Lambton Wildlife Inc.
- Land Conservancy for Kingston, Frontenac, Lennox & Addington
- Land Preservation Society of the Upper Ottawa Valley
- Long Point Basin Land Trust
- Lower Grand River Land Trust
- McIlwraith Field Naturalists
- Mississippi Madawaska Land Trust Conservancy
- Muskoka Heritage Trust
- Nature Conservancy of Canada
- Niagara Land Trust
- Northumberland Land Trust
- Oak Ridges Moraine Land Trust
- Ontario Farmland Trust
- Ontario Heritage Trust
- Ontario Nature
- Orono Crown Lands Trust
- Rainy Lake Conservancy
- Rideau Waterway Land Trust
- Thames Talbot Land Trust
- Thickson's Woods Land Trust
- Thunder Bay Field Naturalists
- Valleys 2000

Source: K. Allan (personal communication).

Image by K. Beechey

- **OLTA Education and Training Program:** Saving land to conserve biodiversity, whether through donations, purchase, or the use of Conservation Easements, is a technical and scientific business. Even professionals in the movement have a difficult time keeping current with all the legislative and tax changes let alone the increased reporting and land registration requirements. The OLTA maintains a website, publishes a monthly E-News to keep subscribers current on the complexities of land trust work, and organizes conferences and workshops. In addition, the OLTA produces valuable publications including a *Land Securement Manual*, a *Baseline Documentation Report Manual* that contains an annotated Conservation Easement template, and a *Fundraising Manual* (K. Allan, personal communication).

The Degree of Protection for Private Land Trusts and the Corresponding IUCN Protected Area Management Category: A Preliminary Assessment

Land Trusts that are dedicated to the protection of biodiversity may qualify as IUCN protected areas. A Land Trust can be based on a legal agreement and can contain a variety of commitments that meet the protection requirements of a 'fully protected' area. Since a variety of mechanisms are employed by individual Land Trusts, the holdings of each Land Trust would need to be evaluated to determine the specific IUCN protected area category that may apply. It is likely that many properties would qualify as IUCN Category Ia, III, or IV protected areas.

Key Contact(s)

Ontario Land Trust Alliance
P.O. Box 97026 RPO Roncevalles
Toronto, Ontario
M6R 3B3
Telephone: 416-588-OLTA (6582)
Fax: 416-588-6588
Website: *www.ontariolandtrustalliance.org*
Information: *info@ontariolandtrustalliance.org*

9. Closing Remarks and Next Steps

The concept of linking natural heritage areas as a way to help keep the ecosphere connected and functioning has been researched and described for decades (Priddle, 1998). For example, the Man and Biosphere Program was established in 1976 to promote and demonstrate a balanced relationship between humans and the ecosphere and to support the creation and maintenance of a world-wide network (the 'World Network of Biosphere Reserves') of areas designed to contribute to the conservation of biological diversity and the sustainable use of ecosystems (Canada/MAB, 1987:1; Hawksworth, 1995:553; Taschereau, 1985). A variety of natural corridor and network techniques have been tested and/or described (e.g., Goodwin, 2003; Noss, 1995; Riley and Mohr, 1994) in the last four decades. For example, in '*Design with Nature*' Ian McHarg (1971:40) describes a manual overlay technique (agencies and organizations do the same thing today with computer-based GIS) to depict values that can be used to design 'greenways' and 'blueways'. And the Expert Panel on Climate Change Adaptation (2009:49) called on government and partners to aspire towards a mid-century biodiversity strategy ("*Biodiversity Strategy for 2050*") that envisions a network in which "*...the province's system of parks, reserves and other types of protected areas, as well areas under the Niagara Escarpment Planning and Development Act, the Oak Ridges Moraine Conservation Act (2001), and the Greenbelt Act (2005), become nodes in a system of migration paths or "Greenways" of interconnected habitat*".

Natural heritage areas must be managed in relation to the ecosystems of which they are a part, particularly if they are intended to contribute to initiatives designed to keep the pieces (ecosystem composition), the parts (ecosystem structure), and the processes (ecosystem function) in working order. Within the context of an ecosystem approach to management, natural heritage areas serve to protect and enhance important natural assets, create a linked (connected) system or a network of areas that help keep Ontario's airscapes, landscapes, and waterscapes working, and provide for an array of cultural, social, and economic values. It is important to note, however, that even if a natural heritage area is not linked to other natural heritage areas, it has value in the context of the ecosystem of which it is a part.

Many conservation organizations have embraced an ecosystem approach including the ecoregional programs adopted by the Nature Conservancy of Canada and the World Wildlife Fund, and the biological corridor model used by Conservation International and the Wildlife Conservation Society's 'Living Landscapes' program (Bishop et al., 2004:100). Many of these initiatives subscribe to conservation targets. The 'Big Picture' project, for example, aims to reverse the impacts of fragmentation in southwestern Ontario by increasing awareness and promoting a spatial image of a natural heritage system to which people can aspire (Gordon, 1999; Jalava et al., 2001, 2002). A long-term objective of the 'Big Picture' project is to expand conservation planning beyond the existing islands of green (Gordon, 1999; Jalava et al., 2001, 2002). Attainment of these objectives requires that agencies and organizations document and describe ecosystem composition, structure, and function. For example, in support of the 'Big Picture' project and other initiatives, Henson et al. (2005:vii) completed a *Great Lakes Conservation Blueprint for Terrestrial Biodiversity* in order to catalogue, classify, map, and analyze biological diversity data and information.

By defining targets for sustainable living, ecosystem by ecosystem and according to a balanced mix of land uses, the chances of maintaining ecosystem composition, structure, and function are increased. And the collective application and coordination of the *Niagara Escarpment Planning and Development Act* (1990), the *Oak Ridges Moraine Conservation Act* (2001), the *Greenbelt Act* (2005), and the *Lake Simcoe Protection Act* (2008) exemplify a commitment to ecologically-based planning and management within which natural asset managers can work to address the spectrum of cultural, social, economic, and ecological factors and forces affecting Ontario's landscapes and waterscapes.

We envision that ecologically-based, comprehensive planning will become increasingly more important as demand for access to and use of natural assets increases during the 21st Century, and decisions to adapt to the impacts of climate change become more sophisticated. We expect that natural heritage areas will continue to provide many ecological goods and services that will collectively contribute to the overall health of the ecosystems of which they are a part. Even though some

Image by P.A. Gray

areas in Ontario may not qualify as "fully protected" under the IUCN classification system, we suggest that they are important to any program designed to enhance and/or maintain biological diversity and contribute to the function of the ecosystem(s) in which they are located. Therefore, these areas merit identification and recognition as well.

Next Steps

This report was created to initiate a catalogue of the variety of natural heritage areas in Ontario, to describe them, and to assess them according to criteria provided in the IUCN protected areas classification system. Although this report includes a wide ranging and detailed assessment of natural heritage areas in Ontario, some categories are treated more thoroughly than others and a few types of areas (e.g., First Nations contributions, university training and research lands, and some government lands like military reserves) are not described. It is anticipated that future versions of this report will include descriptions of these few missing categories and provide an assessment of these areas in the context of the IUCN protected areas classification system. Coupled with these needs, evolving natural heritage area planning and management techniques and opportunities require regular updating and reporting.

Therefore, future initiatives might include:

- Creation of an ongoing forum to identify and evaluate new and emerging natural heritage area planning and management techniques and opportunities. This forum could also be used to coordinate data and information updates about the distribution, abundance, and status of natural heritage areas in Ontario, including categories described in this volume and categories that will be added in future.

- Further work to catalogue additional categories that contribute to natural heritage conservation, such as, but not limited to, tracts used for demonstration, education, research and training; military properties; arboreta and cemetery lands; other private lands; First Nations lands; and, municipal parks.

- Ongoing consideration and possible refinement of the decision criteria used to categorize natural heritage areas as 'fully protected' or 'partially protected'.

- An in-depth examination of the merits of the continued use of categories V and VI in the IUCN protected area classification system, especially as they relate to Ontario and Canada.

- Development of a classification system that acknowledges the contribution of 'partially protected' natural heritage areas to ecosystem, composition, structure, and function.

- A detailed review and assessment of properties cared for by organizations and agencies in order to assign each property to an IUCN protected area category.

- An 'effectiveness management review' of each type of natural heritage area to assess protection success and its implications to ecosystem composition, structure, and function.

- A comprehensive data base of natural heritage areas in Ontario, which is ideally linked to the national Conservation Areas Reporting and Tracking Scheme (CARTS) to provide on-line, real time reporting on Ontario's natural heritage areas (see Appendix 1).

Ontario's diverse array of natural heritage areas is the product of more than a century of incremental efforts aimed at conserving important examples of the province's ecosystems and the fabulous natural history found in them. Characterized by early efforts focused on a few designations, the natural heritage areas movement has blossomed into a wide constituency of government agencies, non-government organizations, academic institutions, and citizens.

And in compiling this report, the authors aspire to stimulate continued and additional collaboration in work to document and report actions and progress on the state of natural heritage conservation in Ontario. Feedback on this report and on next steps will help to gauge interest and support for the future of this initiative.

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Carabetta, M. Ontario Nature, Toronto, Ontario.

Casselman, S. Biodiversity Branch, Ministry of Natural Resources, Peterborough, Ontario.

Cavasin, C. Niagara Parks Commission, Niagara Falls, Ontario.

Crins, W. Natural Heritage, Lands and Protected Spaces Branch, Ministry of Natural Resources, Peterborough, Ontario.

Doherty, P. Department of Fisheries and Oceans, Ottawa, Ontario.

Ferguson, L. Kirkland Lake District Office, Ministry of Natural Resources, Kirkland Lake, Ontario.

Fraser, M. Integration Branch, Ministry of Natural Resources, Peterborough, Ontario.

Followes, E. Aurora District, Ministry of Natural Resources, Aurora, Ontario.

Good, J. Algonquin Park, Ministry of Natural Resources, Whitney, Ontario.

Graham, C. Forests Branch, Ministry of Natural Resources, Sault Ste. Marie, Ontario.

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Kraus, D. Nature Conservancy of Canada, Guelph, Ontario.

Kümmling, B. Bruce Trail Conservancy, Hamilton, Ontario.

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Oatway, J. Forests Branch, Ministry of Natural Resources, Peterborough, Ontario.

Oldham, M. Science and Information Branch, Ministry of Natural Resources, Peterborough , Ontario.

Image by P. Kor

Patterson, N. Canadian Wildlife Service, Ontario Region, Guelph, Ontario.

Potter, B. Biodiversity Branch, Ministry of Natural Resources, Peterborough, Ontario.

Sutherland, D. Science and Information Branch, Ministry of Natural Resources, Peterborough, Ontario

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Whitehouse, D. Niagara Parks Commission, Niagara Falls.

Wiken, E. Canadian Wildlife Service, Environment Canada, Ottawa, Ontario

Yeager, L. Rouge Park, Aurora, Ontario

Appendix 1 Selected Information Sources and Databases on Natural Heritage Areas in Ontario

This appendix summarizes selected documents and databases that contain information on natural heritage areas in Ontario. Various levels of information on protected areas in many of the categories covered in this report are available through these sources. However, while much of this information may be useful for some planning, research, and reporting applications, in many cases it is quite general and dated. Parties interested in obtaining the most complete and current information on specific natural heritage areas in Ontario should contact the primary sources cited in the accounts of the natural heritage areas covered in this report.

Ontario Parks and Ontario Ministry of Natural Resources (OMNR) Documentation

Beginning in the early1970s, the Provincial Parks program initiated a series of ecological and geological inventories of provincial parks to support requirements for environmental planning and management. In the mid-1970s, park system planning studies were introduced to assess existing parks and other protected areas and to identify candidate areas for consideration as future Provincial Parks. Ecological 'system' studies were conducted province-wide on a Site District (Ecodistrict) basis in southern Ontario (Riley et al., 1997) and a Site Region (Ecoregion) basis in northern Ontario (Beechey and Powell, 1990). Geological 'system' studies were also conducted on geographic and thematic bases. Two frameworks, an ecological framework (Beechey, 1980) and a geological framework (Davidson, 1981), were developed to guide the evaluation of candidate areas identified through these systems surveys. Through this process, thousands of protected areas and other significant sites have been assessed using consistent research protocols, methodical field survey procedures, and standardized reporting formats. Since 1980, these studies have formed the basis for the expansion of Ontario's system of Provincial Parks and Conservation Reserves and the designation of Areas of Natural and Scientific Interest. Much of the information in these studies has been incorporated into Ontario Parks' and OMNR databases, with working and archival copies of the reports housed in Ontario Parks.
Website: www.ontarioparks.com

Natural Heritage Information Centre (NHIC) Natural Areas Database (NADb)

The Natural Areas Database (NADb) of the Natural Heritage Information Centre (NHIC) is an on-line database containing some 10,000 entries on natural heritage areas including Provincial Parks, Conservation Reserves, Conservation Areas, Areas of Natural and Scientific Interest, Wetlands, International Biological Programme Sites, Carolinian Canada Sites, and other natural areas. Information provided on each site includes name, location, size, designation, description of natural values, and key references. Areas are indexed to enable searches by jurisdiction, Ecodistrict, and other geographic queries. The relational nature of NHIC databases enables simultaneous queries of natural/protected areas and element occurrences of species and plant communities within targeted areas. The program features mapping capabilities to illustrate the location of sites.
Website: http://nhic.mnr.gov.on.ca/nhic_.cfm

Great Lakes Conservation Blueprint

The Great Lakes Conservation Blueprint is a joint initiative of The Nature Conservancy of Canada (NCC) and the Ontario Ministry of Natural Resources designed to identify key areas for biodiversity conservation in the Great Lakes region of Ontario. The Blueprint is the first comprehensive GIS analysis of this region that invokes multiple datasets on biodiversity elements (e.g., species, communities, and ecological systems) and various land-uses and threats, taking into account natural heritage areas to assess and rank priority areas for conservation. The analyses are conducted in the context of 39 Ecodistricts and tertiary watersheds covering the Great Lakes basin in Ontario. The published account for the terrestrial Blueprint features a description of the 39 Ecodistricts with a tabular summary of targeted biodiversity, along with a map of the ecological systems and a map of natural heritage areas in each. Species and communities are assessed in terms of various ranking schemes and their known population status within and beyond natural heritage areas. Ecological systems are assessed on the basis of their distribution

and extent and their known representation in natural heritage areas. Various analyses can be run to assess and report on the representation of biodiversity in natural heritage areas at Ecodistrict, Ecoregion and basin-wide scales.
Key references: Kraus, 2006; Henson et al., 2005; Henson and Brodribb, 2005; Wichert et al., 2005.
Websites: *www.mnr.gov.on.ca*; *http://science.natureconservancy.ca*

Carolinian Canada Big Picture

The Carolinian Canada 'Big Picture' is a GIS-based spatial analysis of the Carolinian region that was developed by the Carolinian Canada Coalition, the Ministry of Natural Resources, and other partners to design and assess optimal scenarios for the conservation of Carolinian Canada's natural areas and biodiversity. The model invokes multiple data sets and spatial mapping of targeted Carolinian species and ecosystems, and various land-uses impinging upon the integrity of these features and the design of natural heritage area systems. Existing natural heritage areas form the core of the network. Algorithm-based analyses were then conducted to identify and assess additional natural areas, corridors, and linkages that are required to complete a comprehensive natural heritage system. With supporting data sets, the model can be manipulated to assess and illustrate optional conservation scenarios. The 'Big Picture' has served as a template for a similar assessment referred to as the 'Bigger Picture', which takes in all of southern Ontario. Datasets and GIS mapping for these models reside in the Natural Heritage Information Centre (NHIC) and other databases housed by the Ministry of Natural Resources.
Key references: Jalava et al., 2002a; Jalava et al. 2002b.
Website: *www.carolinian.org*

Canadian National Directory of International Biological Programme (IBP) Areas 1968-1979

The 1979 Canadian National IBP Directory (3rd Edition) provides a hard copy summary of 1,531 areas surveyed across Canada through the International Biological Programme. Area summaries include many IBP sites within protected areas, as well as many other natural heritage areas having no protection status. The summaries are consistently formatted and include information on Ecoregional location; size; ownership/administration; brief description of landscape, soils, vegetation, plants and animals; human impacts; and information sources. The Directory is organized into 10 segments that correspond with the 10 IBP survey regions in Canada (see Section 4.1 on page 81 in this report).

The Directory includes summaries of almost all of the IBP areas surveyed in Ontario. Copies of the Directory were provided to lead conservation agencies and some university libraries. Although outdated, the Directory remains valuable as the prototype for ensuing methodical efforts to enumerate protected areas in Ontario and Canada and it still serves as an early benchmark on subsequent progress to identify natural areas for protection throughout Canada.
Key reference: La Roi et al., 1979.

Canadian Council on Ecological Areas (CCEA) National Registry of Ecological Areas

As one of its initial projects, the Canadian Council on Ecological Areas (CCEA) developed a national registry of protected areas motivated by the IBP Directory and based on a survey of federal, provincial and territorial databases on protected areas in the early 1980s (CCEA Registry Working Group, 1984). The registry was a hard copy compilation containing summary information on protected areas owned and managed by federal departments, and provincial and territorial agencies charged with protecting and managing ecological areas. The Ontario segment of the registry included summaries of National Parks, Wildlife Areas, Provincial Parks, Nature Reserves, and Nature Reserve Zones in other Provincial Park classes. Through the 1980s, the registry was updated through jurisdictional reports tabled at the annual general meetings of CCEA. The registry marked an early attempt to use the IUCN classification for protected areas as a basis to categorize and compare various designations.
Key reference: Gray and Rubec, 1989.

Canadian Conservation Areas Database (CCAD)

The Canadian Conservation Areas Database (CCAD) was developed as a joint initiative of the GeoAccess Division of Natural Resources Canada and the Canadian Council on Ecological Areas in collaboration with the Habitat Division of the Canada Wildlife Service and Parks Canada. The digital database, which was developed and maintained during the 1980s and 1990s, was designed to compile, analyze, and report standardized information on protected areas owned and managed by government agencies and non-government organizations across Canada. The data were contributed primarily by federal, provincial, and territorial jurisdictions, and included basic information on location, size, administration, IUCN classification, and other attributes. Analysis and reporting was limited to areas 1,000 ha or greater in size, with limited capability for mapping. Ontario content in CCAD included the protected areas contained in the CCEA Registry as well as additional categories such as Conservation Areas owned and managed by Conservation Authorities. Owing to the 'time-stamped' nature and the high maintenance costs of this database, former on-line access via the Geogratis Data Distribution Service of Natural Resources Canada has been suspended to enable CCAD partners to concentrate on developing the 'real-time' Conservation Areas Reporting and Tracking System (CARTS).

Websites: www.ccea.org; http://geodiscover.cgdi.ca

North America Conservation Areas Database (NCAD)

The North American Conservation Areas Database (NCAD) contains information and point localities for protected areas in Canada, the United States, and Mexico. Information fields include name of the area, designation, location, IUCN classification, size, management authority, year of establishment, and other attributes. Stated aims of NCAD are: to report on conservation areas on a continental basis; to assist agencies and organizations to develop conservation strategies; to provide government agencies, non-governmental organizations, and industry with conservation indicators; and to assist agencies and groups to develop strategies for biodiversity and conservation planning and the protection of natural areas. Since the Canadian information source is largely based upon CCAD, the content for natural heritage areas in Ontario is similar to that in CCAD. NCAD is available as an export format file (.e00) as well as an MS Access file (.mdb).

Key reference: Gauthier and Wiken, 2002.

Website: http://gcmd.gsfc.gov

Conservation Areas Reporting and Tracking System (CARTS)

The Conservation Areas Reporting and Tracking System (CARTS) is a new initiative being developed to replace CCAD with a system that will provide current mapping and reporting for all Canadian protected areas. With funding support from Natural Resources Canada's GeoConnections Program, CARTS is being designed as a web-based network that will provide real-time access to databases of cooperating agencies and organizations charged with the planning and management of natural heritage areas throughout Canada. The network will rely on an existing network of distributed servers already established in various jurisdictions by the National Forest Information System (NFIS), as well as independent servers tied into the system. Through dedicated portals, the scheme will provide simultaneous access to multiple datasets and place control and updating of data in the hands of line agencies responsible for protected areas. An enhanced mapping interface, robust database, and customized reporting templates will enable CARTS to service many assessment, planning, and reporting applications at regional, national, and global scales. Much of the background development for CARTS is in place, with a prototype already being tested. Key CCEA collaborators working on CARTS include experts from federal, provincial, and territorial agencies, the Canadian Parks Council (CPC), and the NFIS steering committee and its local representatives.

Website: www.ccea.org

World Database on Protected Areas (WDPA)

In 1981, the United Nations Environment Programme established the World Conservation Monitoring Centre Protected Areas Data Unit (WCMC-PADU) to compile information on protected areas around the world and to provide a resource for those requiring such information. WCMC houses a series of databases including the UN list of protected areas, protected areas systems of the world, mapping programs, and other information services. One WCMC database, the World Database on Protected Areas (WDPA), is the largest repository of information on protected areas in the world. The WDPA dataset includes basic administrative and descriptive information, along with IUCN designations on protected areas, to enable broad comparisons of protected areas and protected area systems among jurisdictions around the world. Periodic updates on Canadian and Ontario content have been completed through the Canadian Council on Ecological Areas (CCEA), the Canadian Parks Council (CPC), and from time-to-time by the various agencies mandated for protected areas.

Website: *www.unep-wcmc.org*

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